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ABSTRACT

This study examined academic growth of high school age Hispanics as compared with that of non-Hispanic Whites and Blacks. It explored the following issues: (1) academic growth between the sophomore and senior years; (2) the courses the students take while in high school; and (3) the relationship of schooling and student characteristics to academic growth. Findings indicated that Hispanics' average growth did not differ significantly from that of other students. However, average Hispanic achievement was substantially below that of non-Hispanic Whites at both sophomore and senior levels. Far fewer Hispanic seniors than non-Hispanic seniors described themselves as enrolled in an academic program. Over half of all Hispanics except Cubans were enrolled in vocational programs. Hispanics earned fewer credits in the new basics by their senior year than did non-Hispanic Whites. More Hispanics than non-Hispanics drop out of school: approximately 21 percent as compared with 16 percent of Blacks and 12 percent of non-Hispanic Whites. Public policy toward Hispanics should aim at the following: (1) enhancing student achievement in the elementary and intermediate years; (2) reducing the high school dropout rate; and (3) increasing participation of Hispanics in academic programs. The report includes a list of references. Appendixes explain the methodology used and present the data in tabular form. (LHW)

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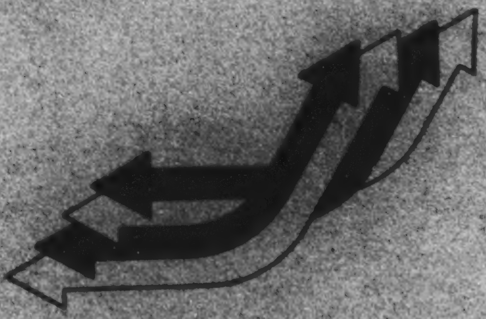

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Academic Growth of High School Age Hispanic Students in the United States

InterAmerica Research Associates

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FOREWORD

This report was produced by the InterAmerica Research Associates under the terms of a contract with the Center for Education Statistics (CES) formerly known as the National Center for Education Statistcs (NCES). In a recent organization of the Office of Educational Research and Improvement, within the U. S. Department of Education, certain changes were made in the mission and responsibilities of NCES and in that connection the agency was renamed the Center for Education Statistics (CES).

This study was designed to examine the academic growth of high school age Hispanics as compared with that of non-Hispanic whites and blacks. The study explores the academic growth of these students between the sophomore and senior years, the courses the students take while in high school, and the relationship of schooling and student characteristics to academic growth. Data used in the study were obtained from the High School and Beyond (HS&B) sophomores in 1980 and from the same individuals again in 1982 when most of them were seniors.

For more information about this report, contact Carl Schmitt, Education Outcomes Division, Center for Education Statistics, 555 New Jersey Avenue, N.W., Room 308, Capitol Place, Washington, D.C. 20208-1328. For information about how to obtain the report contact the Education Information Branch, telephone (202) 357-6651.

Information about obtaining HS&B computer tapes is available from the U. S. Department of Education, Office of Educational Research and Improvement, Information Systems and Media Services Branch, 555 New Jersey Avenue, N.W., Room 327, Capitol Place Building, Washington, D.C. 20208-1327, telephone (202) 357-6528.

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This report, the "Academic Growth of High School Age Hispanics in the United States," was completed with extensive collaboration and support from technical staff in the Center for Education Statistics who performed the data analyses. Carl Schmitt conducted all the computer analyses used in this report and the numerous preliminary analyses that were required. Dr. Schmitt also provided assistance on the structure and preparation of the final report. Jeff Owings was a helpful source of information concerning the High School and Beyond data base, as was William Fetters.

This report benefitted considerably from the statistical advice of John Larson of the Montgomery County Public Schools. Dr. Larson's advice was particularly helpful in designing the multiple regression analyses and interpreting the results.

Secretarial work on this report was completed by InterAmerica staff Suzanne Maheu, Naznin Adams, Cynthia Santos, and Edna Lowe.

This study was conducted under Contract No. 300-84-0195 with the Center for Education Statistics in the U.S. Department of Education. Organizations undertaking projects under government sponsorship are encouraged to state their findings and to state their judgments freely. Points of view and opinions stated in this report do not necessarily represent the position of the government, and no official endorsement should be inferred.

NOTE ON SIGNIFICANCE TESTING

High School and Beyond samples, while representative and statistically accurate, are not simple random samples. Students were selected within schools grouped within strata. Sampling rates for schools within different strata varied, resulting in better data for policy purposes, but at a cost of statistical efficiency. Hence, simple random sample techniques for estimation of standard errors and significance test parameters are frequently underestimates. To overcome this problem, the standard errors for estimates in this report used a conservative and simple approach.

For continuous, variables, the standard errors were first calculated by simple random sample techniques, applying the following formula:

$$S.E.=SQRT(\frac{STD**2}{n}).$$

For percentages, the standard errors were first calculated by simple random sample techniques,

$$S.E.=SQRT(\frac{P*(100-P)}{n}).$$

Second, the simple random sample estimates of standard errors were adjusted by multiplying by a design effect. The design effect multipliers have been previously estimated to be between 1.6 and 2.0 for High School & Beyond data. The data necessary for calculation of the standard errors and confidence intervals for the means and percentages (i.e., N's, standard deviations and design effect sizes) are provided in Appendix B.

Simple significance testing was conducted using Student's t. These t's were estimated for the coefficients shown in Tables 3 and 4 and for the standardized regression coefficients shown in Table 5 from data provided by SPSS analyses. Those coefficients found to be significant at the .01 level are shown with an asterisks. Some parallel analyses of these data were conducted with the Balanced Repeated Replicate (BRR) method. Resulting BRR coefficients support the findings obtained from the SPSS analyses. Estimates of factors having a large impact on achievement obtained with SPSS are somewhat more conservative (smaller) than those obtained with BRR, while estimates of factors with little impact on achievement obtained with SPSS are somewhat larger that those obtained with BRR. Although coefficients obtained by SPSS and BRR differ somewhat, the differences are only marginal. Additionally, it should be noted that many smaller coefficients, although shown to be statistically significant, are likely to have little practical impact on achievement within the time period that achievement was measured for this study. Influences on achievement are likely to be long term and to have been set into motion prior to the sophomore year.

To determine the confidence in the t estimates, the values were compared with 1.65, 1.96, and 2.58 for confidence levels of 90 percent, 95 percent, and 99 percent, respectively.

Executive Summary

This study was designed to examine the academic growth of high school age Hispanics as compared with that of non-Hispanic whites and blacks. The study explores the academic growth of these students between the sophomore and senior years, the courses the students take while in high school, and the relationship of schooling and student characteristics to academic growth. Data used in the study were obtained from the High School and Beyond (HS&B) sophomores in 1980 and from the same individuals again in 1982 when most of them were seniors. The study was conducted by Inter-America Research Associates for the Center for Education Statistics (CES) in the U.S. Department of Education under Contract No. 300-84-0195.

Major Findings

Academic Growth from the Sophomore to Senior Year. Hispanics' average growth in academic achievement between the sophomore and the senior year was comparable to the academic growth of non-Hispanic whites and blacks. Average Hispanic achievement was nevertheless substantially below the achievement of non-Hispanic whites at both the sophomore and senior levels. Thus, while Hispanics did not gain in achievement relative to non-Hispanic whites or blacks, neither did they fall further behind. The pattern with respect to individual tests of vocabulary, reading, mathematics, science, and writing was much the same.

Hispanics gained in achievement between the sophomore and the senior year approximately as much as non-Hispanic whites and blacks. On some individual achievement tests, the gain among Hispanics, although statistically significant, was only marginally greater than that among non-Hispanic whites. However, the gains among Hispanics were not sufficient to overcome their initial disadvantage relative to non-Hispanic whites.

All Hispanic subgroups exhibited academic growth from the sophomore to the senior year. Differences among the subgroups in the size of gain varied from test to test, but in no case were they large enough to have practical significance. The differences in academic growth among Hispanic subgroups were less than one test item.

High School Program. In their senior year far fewer Hispanics students than non-Hispanic white students described themselves as in an academic program. An estimated 31 percent of Hispanics were in an academic program as compared with 45 percent of non-Hispanic whites and 35 percent of blacks. In contrast, approximately 52 percent of Hispanics reported they were enrolled in a vocational program as compared with 34 percent of non-Hispanic whites and 51 percent of blacks.

Analyses of differences among Hispanic subgroups indicated that approximately 26 percent of Mexicans were enrolled in academic programs compared with 35 percent of Puerto Ricans and 34 percent of other Hispanics. An estimated 53 percent of Cubans were enrolled in academic programs.

An estimated 53 percent of Mexicans were enrolled in vocational programs, as were 52 percent of Puerto Ricans, and 53 percent of other Hispanics. Approximately 29 percent of Cubans were enrolled in vocational programs. Thus, over half of all Hispanic subgroups except Cubans were enrolled in vocational programs.

Academic Credits in the New Basics. Further indication that Hispanics were less likely than non-Hispanic whites to participate in academic programs was obtained from analysis of credits earned in the new basics. The new basics were part of the minimum requirements for high school graduation recommended by the National Commission on Excellence in Education (1983) and include English, mathematics, science, social studies, and computer sciences.

Hispanics earned fewer credits in the new basics by their senior year than did non-Hispanic whites. Hispanics had approximately 8.1 credits in the new basics or the equivalent of four full years of academic work at about two credits per year. In contrast, non-Hispanic whites had an estimated 10.2 credits or approximately an extra year of course work at the rate of two credits per year. Black students earned an estimated 8.8 credits in the new basics over their four years of high school.

Data on Hispanic subgroups revealed that Mexican students had completed 8.3 credits in academic areas compared with 8.7 credits for Cubans, 7.0 credits for Puerto Ricans, and 8.5 credits for Other Hispanics.

Dropouts. Although the academic growth of Hispanics was comparable to that of non-Hispanic whites, more Hispanics dropped out of school. Approximately 21 percent of all Hispanics dropped out of school between the sophomore and the senior years as compared with an estimated 16 percent of blacks and 12 percent of non-Hispanic whites.

Among the Hispanic subgroups, an estimated 23 percent of Mexican students dropped out compared with 20 percent of Cubans, 28 percent of Puerto Ricans, and 13 percent of Other Hispanics.

Influences on Academic Growth. Achievement in the sophomore year was one of the major predictors of academic growth by the senior year, as measured by the average of HS&B tests in vocabulary, reading, mathematics, science, and writing. This finding was consistent across tests. An estimated 33.6 percent of the total variance in senior year achievement was explained by the student performance in the sophomore year independent of the other variables included in the analysis: the student's socio-economic background (SES), sex, educational aspirations, home language background, race/ethnicity, and academic credits (Carnegie units). A total of 1.7 percent of the total variance is explained by these predictors. An additional 48.8 percent of the variance in senior year achievement is explained by the joint and overlapping influences deriving from these variables. Although the exact percentages differed for each achievement test, the findings were similar.

The number of credits earned in academic courses from ninth through twelfth grade had a small but statistically significant relationship to improvements in achievement between the sophomore and the senior years. The relationship between the number of academic credits earned and growth in mathematics was greater than the relationship between academic credits and achievement in other areas. While the relationship of academic credits to growth was generally modest, the number of academic credits earned between the tenth and twelfth grade may nevertheless be important because of its impact on eligibility for college.

Discussion

At the sophomore level, Hispanics scored significantly lower on achievement tests than non-Hispanic whites. By the end of high school, Hispanic students had gained about as much in achievement as non-Hispanic whites in all test areas, but not enough to overcome their initial disadvantage. Thus, Hispanics remained behind non-Hispanic whites in achievement by about the same amount at the senior level as they were at the sophomore level.

Sophomore year achievement is the principle independent predictor of senior year performance. Other potential predictors, such as socioeconomic background, sex, educational aspirations, home language back-ground, race/-ethnicity, and course taking in academic areas were found to have only a slight effect on academic growth. Academic credits earned in high school also have little average effect on academic growth from the sophomore to the senior year. The search for meaningful educational influences on the senior year high school performance of Hispanic students should be broadened and begin prior to the sophomore year of high school.

Credits earned and program enrollments in high school may be important despite their apparent small influence on academic growth during the period between tenth and twelfth grade. Public policy toward Hispanics should be directed toward enhancing student achievement in the elementary and intermediate years, reducing the high school dropout rate, and increasing the participation of Hispanics in high school academic programs.

Data Source

Data used to examine the academic growth of students in U.S. high schools were obtained from the Sophomore cohort members of the High School and

Beyond (HS&B) survey. HS&B included a longitudinal study of the 1980 high school sophomore class in both public and private schools in the United States. The 1980 Sophomore base-year data include a broad range of information on student background and educational experience obtained from questionnaires administered to students, administrators, teachers, and parents. Additionally, students were administered achievement tests in vocabulary, reading, mathematics, science, and writing. With financial support from the U. S. Office of Bilingual Education and Minority Languages Affairs (OBEMLA), HS&B oversampled public schools which enrolled a high percentage of Hispanics.

The first follow-up survey conducted in Spring 1982 provided additional data. A subsample of the students was re-administered the earlier achievement tests to measure academic growth over the two year period. In addition, complete transcript data for all four years of high school were collected on a separate subsample of students in the base year sample. Students who dropped out between the sophomore and the senior year were also included in this analysis.

Test Scores and Measures of Academic Growth

Test scores reported in this study were raw scores that had been adjusted on the basis of Item Response Theory (IRT) for guessing, item difficulty, and item discrimination power. Two measures of academic growth were used. One is the difference between the senior year IRT score and the sophomore IRT score expressed in sophomore standard deviation units. The other is the senior year IRT score adjusted for sophomore level achievement. This adjustment removes from the senior level achievement any influence due to initial sophomore performance.

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I. INTRODUCTION

The educational disadvantage of Hispanic youth relative to non-Hispanic whites has become the subject of an intense national policy debate. This debate concerns the nature and origins of the disadvantage, the range of acceptable solutions, and the role of the federal government in addressing these concerns. One issue on which there is firm agreement is the existence of a disadvantage for Hispanics in English language skills, educational achievement, number of years of school completed, and occupational status attainment in comparison to the non-Hispanic white population (Duran, 1983; Hispanic Policy Development Project (HPDP), 1984; Center for Education Statistics (CES), 1982; National Council on Employment Policy (NCEP), 1982; Newman, 1978; Office of the Assistant Secretary of Defense (OASD), 1982; Roth, 1982; Veltman, 1980).

This report, the "Academic Growth of High School Age Hispanics in the United States," was designed to examine the academic growth of Hispanics of high school age compared to non-Hispanic whites and blacks. The study explored the academic growth these students experience between their sophomore and senior years, the courses the students take while in school, and the relationship of course taking and student characteristics with academic growth. The study used data from High School and Beyond (HS&B) for 1980 sophomores who became seniors in the first follow-up in 1982. The study was conducted by InterAmerica Research Associates for the Center for Education Statistics in the U.S. Department of Education under Contract tract No. 300-84-0195.

This report is divided into five major sections or chapters. The introduction provides a statement of the background for the study and a review of the literature. The second chapter shows the major results from analyses of academic growth from the sophomore to the senior year among Hispanics and non-Hispanic whites and blacks. The third chapter reports on the high school programs (academics, vocational, general) in which Hispanics and non-Hispanic whites and blacks are enrolled and the academic credits these students earn. The fourth chapter presents findings from analyses of the relationship of schooling and student characteristics with academic growth. The final chapter is a summary which includes interpretations relative to policy issues and further research.

Rationale for the Study

The debate over the status of Hispanics in education involves both policy and research issues. The policy issues have been concerned with the contribution to the educational success of Hispanic children made by bilingual vs. all-English instructional systems (Baker & deKantor, 1983), and the proper role of the federal government in regulating or assisting educational decisions made by state and local education agencies (Education Department (ED), 1981; Education Times, 1982; USA Today, 1983). In an era of limited federal expenditures, restrictions on direct involvement of the federal government in education, and increasing questions about the effectiveness of federal education programs for minority language children, recommendations have emerged to eliminate altogether or to alter substantially the nature and scope of the federal support (Bikales, 1983; Rotberg, 1982; 20th Century Fund, 1983).

The research issues regarding Hispanic students are no less complex. Research has focused recently on the relative contribution to educational attainment and success of language background relative to socioeconomic status (DeAvila, 1980; Nielson & Lerner, 1982; Rosenthal, Milne, Ellman, Ginsburg, & Baker, 1983; So & Chan, 1984), the importance of English relative to Spanish language usage and skills (CES, 1982; NCEP, 1982; Nielsen and Lerner, 1982; Veltman, 1980), and the importance of schooling experiences and administrative policies and practices in comparison to language or other background variables (Nielsen & Fernandez, 1981). Findings from these studies indicate that both socioeconomic status and language background are important.

The research issues converge with policy when the research focuses on influences that are subject to policy control. That is, research can not only identify school practices that affect student achievement, but can also provide important information that may be used in redirecting school resources so that students have an improved chance of succeeding in school.

The present study differs from prior research and policy analyses in a number of important ways. The first major distinction between the present study and prior research and policy analyses is that prior studies conducted at the high school level generally used cross-sectional data. They were able to address issues concerned only with one-time assessment of achievement but not academic growth measures on the same persons over time. The effects of this limitation were that the high school data failed to reflect changes in achievement across time, and that achievement comparisons between Hispanics and other groups never adequately controlled for initial performance. In using longitudinal data, the present study will be able to track the academic growth in achievement between the sophomore and the senior year of high school. Second, most analyses of Hispanics in school have been concerned with dropout or achievement issues and did not examine, as this study does, patterns of course taking for Hispanics and non-Hispanics as related to selected language, socioeconomic, and other variables. A third major distinction between the present investigation and prior research is that past studies did not obtain data on the relationship between course taking and achievement. These studies were, therefore, unable to discern whether schooling was related to academic performance independent of the contributions made by background and language factors. The present study investigates whether academic credits and student background are related to achievement in grade twelve. A final distinction which sets this investigation apart from prior studies is that most of the prior analyses have not differentiated among Hispanic subgroups by ethnicity. In analyzing ethnicity among Hispanics, the present study reveals important differences for students who identify themselves as being from Mexican, Cuban, Puerto Rican, and other Hispanic backgrounds.

Hispanic subgroups differ in a number of important ways that could lead to differences in academic growth and high school participation (HPDP, 1984). The groups differ in length of residence in that most Cubans have lived in the United States fewer than two decades. Puerto Ricans are more diverse and may be recent arrivals, U.S. born, or move back and forth between the island and the mainland. Mexicans may be either long term residents or recent arrivals. Other Hispanics are a diverse group that includes long term residents and immigrants for economic and political reasons.

Hispanic groups also differ in median age. The median age of Cubans falls closest to the median age of the total population, while the median age of other Hispanics is considerably less. Cubans have higher median incomes than other Hispanics although all subgroups are below the median income of the total U.S. population. Mexicans are least concentrated in white collar jobs, while Other Hispanics are most heavily employed in white collar jobs.

Far more will be understood about the composite picture of Hispanic secondary education from this study than was available from prior research. The academic growth of Hispanics compared to non-Hispanic whites and blacks, the courses taken by these students, and school and student attributes that are associated with academic growth are elements of a larger pattern that has been understood incompletely, particularly among Hispanic subgroups. A broader understanding of the conditions and experiences of Hispanic youth in the nation's secondary schools may contribute to a refinement of the policy options most likely to alleviate the educational disadvantage of these students.

Purposes

The major purposes of this study are as follows:

- To describe the academic growth of Hispanic compared with non-Hispanic whites and blacks,
- To identify the courses Hispanics take in school in comparison to non-Hispanic whites and blacks, and
- To determine whether academic credits and student background and language characteristics are positively related to academic growth.

This study is also concerned with differences among Hispanic subgroups (Mexican, Cuban, Puerto Rican, Other Hispanic) with regard to the above purposes. That is, an additional purpose was to determine whether there were differences among Hispanic subgroups with regard to academic growth from the sophomore to the senior year, the courses taken in high school by Hispanic subgroups, and the relationship of academic credits and student characteristics to academic growth. A secondary purpose of this study was to determine if differences in academic growth between Hispanics and non-Hispanic blacks and whites or among Hispanic subgroups vary by sex, socioeconomic status, educational aspirations, and language background of students.

Review of the Literature

Differential academic achievement for Hispanic and non-Hispanic whites has been reported in a number of areas. Hispanics have lower test scores (National Assessment of Educational Progress (NAEP), 1983; CES, 1982a, OASD, 1982), are more behind in grade (CES, 1982a), and have higher rates of functional illiteracy (Astin, 1982). School achievement differentials are found consistently on reading, math, and vocabulary tests (NAEP, 1983; CES, 1982a). Major differences have been found in school attainment or number of years of schooling completed between Hispanics and non-Hispanic whites (CES, 1978; 1983; Steinberg, Blinde, & Chan, 1984).

A number of influences have been suggested to affect the educational attainment of Hispanics. Among these are the following: low proficiency in English (Lopez, 1982; Veltman, 1980), regular use of Spanish (Nielsen & Fernandez, 1981; Veltman, 1981), low socioeconomic status (Rosenthal, Milne, Ellman, Ginsburg, & Baker, 1983), low educational aspirations (CES, 1982b; Nielsen & Fernandez, 1981), and longer residence in the United States compared to more recent immigrants (Nielsen & Fernandez, 1981). In fact, completion of the student's early years of schooling prior to immigration is positively related to achievement (Cummins, 1981; Cummins, Swain, Kazuko, Handscombe, & Green, 1981). Educational attainment of Hispanics is positively related to Spanish language proficiency, controlling for socioeconomic status (Veltman, 1981), although this may be true only when English language skills are also well developed (Nielson & Fernandez, 1981; Nielsen & Lerner, 1982; Tienda & Neidert, 1981).

Three crucial elements missing in these analyses are:

- o the academic growth of Hispanic students over time,
- o course taking of Hispanic youth relative to non-Hispanics, and
- o the course enrollment and student characteristics that are associated with academic growth.

Analyses of academic growth are essential to understand the areas of achievement in which Hispanic students gain from school participation compared to non-Hispanic students. Information on course taking of Hispanics is important to gain a perspective on the educational experiences of Hispanics and Hispanic subgroups. Analyses of the course enrollment and student characteristics that are associated with academic growth will be particularly important in order to gauge the extent to which education is an important contributor to student performance over time.

The review of the literature which follows addresses three major areas of concern to this investigation. The first area is academic achievement and growth by Hispanics in secondary school. This review is based on cross-sectional analyses of tested performance in the sophomore and senior years. The second area of the literature review is the courses taken by Hispanic high school students compared with non-Hispanic whites. Studies are reviewed that reveal what is currently known about course taking among Hispanics, particularly with respect to courses identified as part of the "new basics." The third area reviewed focuses on influences on academic achievement of Hispanics in high school, particularly related to socioeconomic status and language. In each of the areas reviewed, research questions drawn from the literature are identified.

School Achievement and Academic Growth. Hispanic high school students consistently score below the average shown for non-Hispanic whites on measures of school achievement in vocabulary, reading, and mathematics (Duran, 1983; NAEP, 1982; CES, 1982; OASD, 1982a; Owings & Fetters, 1984). Hispanic performance in mathematics is even slightly lower relative to non-Hispanic whites than is their performance in vocabulary and reading at both the sophomore and senior levels.

Analyses of Hispanic subgroups in HS&B reveal that Cubans perform better than other Hispanic subgroups irrespective of achievement area both at the sophomore and the senior levels, but remain below the average for non-Hispanic whites (CES, 1982a). Cubans typically score about one third of a standard deviation below non-Hispanic whites, and other Hispanics score over two thirds of a standard deviation or more below the mean score for non-Hispanic whites.

Some interesting patterns emerge when Hispanic sophomore and senior achievement in vocabulary, reading, and mathematics is contrasted with the performance of non-Hispanic whites. Although these HS&B data are cross-sectional, a number of hypotheses for academic growth can be drawn. Generally, non-Hispanic whites show growth between the sophomore and senior years of between one third and one half a standard deviation, depending on the test. This is the equivalent of roughly 1.5 to 2.5 test items. Although growth also occurs for all Hispanic subgroups between the sophomore and senior years, the growth is generally not so substantial as that found for non-Hispanic whites. This means that the average achievement disadvantage of Hispanics relative to non-Hispanic whites increases between the sophomore and senior years. The number of standard deviation units that scores of Mexican-American students fell below non-Hispanic whites shifts between the sophomore and the senior years from 0.63 to 0.68 for vocabulary, 0.60 to 0.80 in reading, and 0.74 to 0.80 in mathematics. This average achievement decrement appears despite the fact that proportionately more Hispanics than non-Hispanic whites drop out between the sophomore and senior years (CES, 1983b).

The present study examines a number of research questions concerning relative academic growth by Hispanics that can be addressed through analyses of HS&B. HS&B includes a sample of students followed longitudinally from their sophomore to their senior years. HS&B also contains academic tests of performance in vocabulary, reading, mathematics, science, and writing. Analyses can therefore be performed to determine the academic growth of students in a variety of test areas. Analyses of academic growth can also be performed for Hispanics and non-Hispanics and among Hispanic subgroups.

The first set of specific research questions that are addressed in this study are as follows:

- What is the Academic Growth Among Hispanics and Non-Hispanics? What differences are there among Hispanic subgroups compared with non-Hispanic whites and blacks concerning academic growth? Are there differences among Hispanic subgroups?

- Do Differences in Academic Growth Between Hispanics and Non-Hispanics Vary with Achievement Area? Are there differences between Hispanics and non-Hispanics in academic growth among tests of vocabulary, reading, mathematics, science, and writing? Are there difference, in academic growth by achievement area among Hispanic subgroups?

Course Taking in School. Analysis of the courses taken by Hispanic students is particularly important to determine whether or not these students had an opportunity to profit from educationally stimulating experiences. Hispanics enrolled disproportionately in nonacademic tracks would have little opportunity to gain from exposure to advanced English, mathematics, or science courses. While many of these students could have initial achievement levels which fail to warrant placement in more advanced courses, their lack of participation in these courses should spark inquiry into the origins of nonacademic placements. If Hispanic ethnicity is strongly related to academic program independent of initial achievement, other self-selection or school decision factors may be influencing Hispanic program enrollment.

Available evidence on Hispanic enrollment in high school programs indicates that college-bound high school Hispanics who took the College Entrance Examination Board (CEEB) were less likely than non-Hispanic whites to be enrolled in college preparatory programs (Duran, 1983). Data available from CEEB records in 1980-81 show that Hispanic students who took the Scholastic Aptitude Test (SAT) were almost 15 percent less likely than whites to have been enrolled in college preparatory programs during high school. Approximately 80 percent of the non-Hispanic white test takers had been enrolled in a college preparatory program in comparison to about 65 percent of the Hispanic test takers. Although these differences are not large, they were obtained on a select group of students who took the SAT and who were probably college bound. The findings are suggestive of the magnitude of the differences which might be found in a more representative sample of students.

College-bound Hispanics and non-Hispanic whites differ on number of years exposure to core academic areas among those taking the SAT (Duran, 1983). About 93 percent of non-Hispanic whites compared to 84 percent of

Mexican-Americans had studied English for four or more years. Almost 90 percent of Puerto Rican youth taking the SAT studied four or more years of English. Duran suggests that the high percentage of Puerto Ricans taking four or more years of English may reflect differences in the type of English courses taken. Puerto Ricans may be reporting exposure to English as a second language (ESL) courses. The content of these ESL courses may be substantially less demanding than English courses for native English speakers. Analyses of prior exposure to mathematics instruction indicated that about 60 percent of whites studied math for four or more years compared to roughly 45 percent of Hispanics. In analyses of other areas of study -- such as foreign languages, biological sciences, physical sciences, and social sciences -- differences between Hispanics and non-Hispanic whites were not so clear. Duran (1983, p. 8) cautioned against over interpreting comparisons of exposure to academic courses between Hispanics and non-Hispanics since the level of the courses and quality of instruction cannot be determined from the results. The data nevertheless indicate that college admissions staff reviewing applications of college-bound Hispanic students would find "lower academic qualifications than among non-minority college candidates".

Other analyses of high school course taking based on national samples of all students are consistent with these analyses of college-bound SAT takers. Of particular interest in this regard are analyses of courses taken toward a normative standard of course taking established for all students by the National Commission on Excellence in Education (NCEE) in its report *A Nation at Risk* (1983). NCEE recommended that high school graduation requirements include the following numbers of years of instruction in what they referred to as the "new basics:"

- four years of English,
- three years of mathematics,
- three years of science,
- three years of social studies, and
- .5 years of computer sciences.

Additionally, for college-bound students, two years of a foreign language in high school were recommended.

Recent analyses of a sample of 12,000 transcripts of 1982 high school graduates by the Center for Education Statistics (CES) as part of HS&B indicate that only in English and social studies did more than 50 percent of 1982 graduates meet the NCEE-recommended standards for graduation (CES, 1984). In other fields, less than 50 percent of the 1982 seniors met each of the individual standards. Fewer than 3 percent overall met the requirements for students who were not college bound. These students had no foreign language requirement. CES concluded that "the potential to earn more credits in the new basics exists in every grade of high school, particularly in the later years" (p. 1).

More pertinent to the analyses performed here, CES also investigated differences in course completion for subgroups identified by race/

ethnicity, socioeconomic status (SES), high school program, and other variables. Both non-Hispanic white and Asian-American students earned substantially more credits in the new basics than blacks and Hispanics, and Hispanics earned slightly less than blacks. There was a decline between grades 9 and 12 in credits earned toward the new basics that was quite pronounced among Hispanics, who in their senior year earned fewer credits toward the new basics than any other racial/ethnic group. The Cubans, more than any other Hispanic subgroup, had a pattern of course taking which was similar to that of non-Hispanic whites. A concern for the quality of courses taken by Hispanics was evident in early analyses of HS&B by CES (Peng, Fetters, & Kolstad, 1981), which showed that Hispanics had among the lowest percentages of 1980 high school seniors taking specific mathematics and science courses such as algebra, trigonometry, physics, and chemistry.

Further analyses of course taking in HS&B by CES revealed differences between Hispanics and other racial/ethnic groups in Carnegie units (credits) earned by 1982 seniors over the four years of high school (Owings and Fetters, 1984). One Carnegie unit is the equivalent of a full year of course work in high school. In areas covered by the new basics, CES reported that Hispanics received fewer Carnegie units than non-Hispanic whites in all areas by margins ranging from 0.1 units in social sciences to 0.4 units in math for a total difference of 1.5 Carnegie units across all areas.

Analyses of HS&B data were also performed on mean course grades over the four years of high school for 1982 seniors (Owings & Fetters, 1984). In course areas covered by the five basics, discrepancies between Hispanics and non-Hispanic whites ranged from .32 mean grade points in math and physical sciences to .72 in social sciences (figures derived from tabled percentages). The only area in which Hispanics obtained a higher mean grade point average was in foreign languages, where the difference was .37 favoring Hispanics. Additional analyses revealed that this advantage appeared only in Spanish foreign language courses, regardless of level, but not in French (Fetters & Owings, 1984). Very few Hispanics took other foreign language courses. Since none of these more recent analyses by CES included results for early graduates, transfer students, or dropouts between the sophomore and senior years, the gap between Hispanics and non-Hispanic whites could be even greater than was reported.

The high dropout rate for Hispanics alluded to earlier (CES, 1978) merits special consideration in analyses of academic progress during the high school years. Dropout rates (defined as premature school leaving) among Hispanics rose steadily from 30 percent in 1974 to 40 percent in 1979, while dropout rates among whites overall (including Hispanics) have remained stable at about 25 percent since 1976 (Steinberg, Blinde, & Chan, 1984). The various factors said to influence academic achievement among Hispanics, particularly language and socioeconomic status, tend to be discounted in most discussions of school dropouts. At each of four different levels of poverty, for example, the Hispanic dropout rate among those aged 14-30 years in a national sample was reported to be two to three times higher than the rate among non-Hispanic whites of comparable incomes (Brown, Rosen, Hill, & Olivas, 1980). Further, Hispanic language minorities drop out at a substantially higher rate than non-Hispanic language minorities. Language minority status per se, therefore, is not a major contributing variable to dropping out.

One analyst (Veltman, 1983) suggested that it was speaking Spanish in particular that contributed to high dropout rates. Veltman posits the existence of a "linguistic ethnocentricism" among English language majority persons in the United States that is triggered by the combination of significant numbers of minority language persons and a perceived threat to the integrity of the English language. The result is linguistic stratification in both education and the work place. A complementary hypothesis of particular interest, although formulated originally to explain the poor achievement of Mexican-Americans in middle schools (Hernandez, 1973), suggests that one of the principal factors that should be investigated is the school system's lack of responsiveness to minority students in general. This suggests that students with a high probability of dropping out, primarily Hispanics, receive little special attention either in their courses or in other aspects of their school experience to encourage retention. Although but a modest beginning in the investigation of such potential school experiences, data should be analyzed at a minimum on the course taking of Hispanic relative to other racial/ethnic groups prior to dropping out.

Analyses of Hispanic dropouts using data originating in grade 10 as in HS&B are problemmatic for a variety of reasons (Fernandez & Nielsen, 1983; Hirano-Nakanishi, 1983; Nielsen & Lerner, 1983). The scope of the problem is indicated by recent findings that as many as 40 percent of Hispanic dropouts may leave school before the 10th grade, while many of those who remain in school are delayed in grade (Hirano-Nakanishi, 1983). The Hispanics remaining in school, although educationally disadvantaged, are likely to be more capable academically than Hispanic students who dropped out and may fail to represent the broader Hispanic age group. These Hispanic survivors may be quite different from enrolled non-Hispanic whites, whereas the Hispanic dropouts themselves may not be comparable to non-Hispanic white dropouts. Analyses attempting to treat dropouts and non-dropouts as possessing parallel features could be misleading. At a minimum, the differential dropout rates of Hispanics urge additional analyses to identify associated factors, and at the same time suggest that caution in interpreting the results of studies beginning in the high school years is warranted.

This study compares course taking among 1982 graduating and dropout Hispanics and non-Hispanic whites and among subgroups of Hispanics. Most of the prior analyses of course taking have not identified results for Hispanic subgroups. More information is needed on the type of program in which the student was enrolled during high school (general, academic, or vocational) and the number of academic credits accumulated in course areas considered part of the new basics.

The second set of research questions in this study are as follows:

- What are the variations in High School Program by Racial/Ethnic Subgroup? Are there differences in high school program between Hispanics and other racial/ethnic groups? Are there differences by Hispanic subgroup?

- What are the variations in Academic Credits in the New Basics? Are there differences in the number of academic credits accumulated toward the new basics between Hispanics and other racial/ethnic groups? Are there differences by Hispanic subgroup?

Influences on Academic Growth. The impact of schooling on the academic growth of Hispanic students at the secondary level has been overshadowed by analyses of socioeconomic status (SES) and language background (e.g. Baker & deKanter, 1983; CES, 1982b; Rosenthal et al., 1983). Attempts to untangle the relative contribution of SES and language background are important for federal education policy. Current federal legislation supplying language-based instructional programs would be supported if the dominant influences on Hispanic achievement are language related. Conversely, if the major influences on Hispanic achievement are related to SES, a compensatory education type of approach could be justified. The current language-related programs could be redirected, and arguments for subsuming the federal bilingual program under Chapter I (the compensatory education program) would gain strength. The debate is not about the need to provide services to students who are limited in English proficiency, but over the determinants of the need and the implications the determinants have for specific instructional services (Rosenthal et al., 1983).

At least four major flaws can be found in most prior studies attempting to resolve this debate. The first is that studies performed at the secondary level have all been cross-sectional and were unable to assess change in scores over time for a single group. A second major flaw in these studies is that they did not have information available on schooling experiences. While analyzing the impact of SES and language background is important, the studies were never able to determine the impact of course taking. A third issue is that achievement has usually been measured in verbal areas such as vocabulary and reading without information on mathematics and sciences. There may be differences among achievement areas in the relationship of test scores with course taking, SES, or language background. A fourth concern with these studies is that the conceptualization of language variables is limited to home language. While home language is an important defining feature for language minority identification, home language background would not be expected to have a strong relationship with academic achievement. Students from any type of home language background can be limited in English proficiency and consequently not perform well in school. The importance of English proficiency in school performance suggests that a measure of English use or English proficiency should be included along with other language influences in analyzing school achievements.

In order to address some of these concerns, So and Chan (1984) analyzed data from HS&B while examining the relationships among language background, SES, and ethnicity. Students were classified into one of three categories: English monolingual, English dominant bilingual (uses a non-English language at home but not elsewhere), or Other Language Dominant Bilingual (uses a non-English language both at home and elsewhere). Findings indicated that about 50 percent of the reading test gap between English monolingual students and Other Language Dominant Bilinguals (Hispanics and non-Hispanics combined) can be reduced by removing the effects of SES (about 26 percent) and ethnicity (another 24 percent), leaving about 50 percent of the original gap attributable to language factors. So and Chan went on to conclude that "both language background and SES have a substantial impact on reading achievement score" (p. 38). However, SES had more of an effect for whites than Hispanics, indicating that while much of the reading obstacle to white students is related to SES, the reading obstacle for Hispanic students may be addressed most effectively through approaches that consider both language and SES.

In a direct response to the So and Chan investigation, Rosenthal, Baker, and Ginsburg (1983) re-analyzed data from the Sustaining Effects Study of ESEA Title I. This analysis modified the Rosenthal, Milne, Ellman, Ginsburg, and Baker (1983) study, which had been performed earlier. The specific modifications Rosenthal and his coworkers made were to analyze data longitudinally, differentiate race from socioeconomic status, and analyze a variety of interactions not considered in their original study. The Sustaining Effects Study (Hoepfner, Wellisch, & Zagorski, 1977) was a nationally stratified sample of students in grades one through six selected from schools in 1976-77. Achievement level was defined as Fall Semester reading and math scores on the Comprehensive Test of Basic Skills (CTBS) in the first year of the study. A measure of learning was derived from the comparison with Spring Semester scores in the same academic year. Students were classified into one of three groups based on the language parents used in helping the child with homework: English only, English and another language, and other language only. Findings from the Rosenthal et al. study indicated that slightly over half the difference between Spanish and English language students was due to socioeconomic status and race/ ethnicity, while the remaining half was due to language differences. These results essentially confirm the findings from the So and Chan report.

Recent studies such as the So and Chan report suggest that the conceptualization of language variables should be extended beyond home language background to include individual language use and language proficiency. For example, individual language use was coded in HS&B by Neilsen and Fernandez (1981) as the average frequency of listening and speaking Spanish with mother and father. Students in HS&B who used Spanish at home tended to perform more poorly on measures of mathematics and reading achievement. Analyses also indicate that Spanish proficiency is positively associated with mathematics and reading achievement, leading some investigators to speculate on the absence of a cost to bilingualism (Nielsen & Fernandez, 1981). That is, there may be no achievement disadvantages resulting from the cognitive overload of dealing with two languages simultaneously.

Other potential influences on school achievement among Hispanic youth in high school can be cited. Two important factors are educational aspirations (CES, 1982; Nielsen & Fernandez, 1981) and sex (CES, 1982a), although the influence of sex presumably disappears for students when controlling for aspirations (Jackson, 1973). No differences in aspirations between Hispanic males and females have been reported in HS&B (Neilsen and Fernandez, 1981). Nielsen and Fernandez (1981) report that differences in achievement among Hispanic subgroups generally disappear when individual factors such as sex, SES, language variables, and length of residence in the United States are controlled. One exception was the difference between Cubans and other Hispanics. Length of residence among Hispanics has a has a significant negative correlation with mathematics achievement for sophomores and with reading achievement for seniors (CES, 1982a). That is, Hispanics with shorter length of residence have higher scores in reading.

The importance of school variables in Hispanic high school achievement has thus far been neglected in research except for one analysis in HS&B of earlier schooling related to language of instruction (Chan & So, 1982). Findings in this study indicated that students reporting exposure in elementary school to dual language classrooms performed better on measures of high school achievement in reading and mathematics than their Hispanic peers who experienced instruction predominantly in English or Spanish.

This study will determine whether or not course taking is associated with academic growth for Hispanic students and Hispanic subgroups independent of the influence of prior achievement, background variables, and language characteristics. The focus in this study is on the differential impact of course taking on Hispanics vs. non-Hispanics and on Hispanic subgroups controlling for other variables. The definition of language factors is particularly important and should consider the three major language variables used in prior analyses -- home language, individual language use, and language proficiency. The third set of specific research questions of concern in this study are as follows:

- What Influences are Associated with Academic Growth? What is the relationship of course taking to academic growth for Hispanic students and Hispanic subgroups as contrasted with non-Hispanic whites and blacks? Is course taking related to academic growth independent of the relationship of SES and language background or other student characteristic?

- What are the Specific Influences of Language Variables and SES on Academic Growth? Are language background and language proficiency more important than SES in explaining differences in academic growth between Hispanics and non-Hispanics and differences among Hispanic subgroups?

Overview of Approach

The foregoing research questions concerning academic growth, course taking, and influences that are associated with academic growth are addressed in this study through analyses of HS&B 1980 sophomore base year and first follow-up data. The first set of research questions focus on differences in academic growth among Hispanics and non-Hispanics whites and blacks. These questions are addressed through tabular analyses showing differences in growth from the sophomore to the senior year. Academic growth is reported on measures of vocabulary, reading, mathematics, science, and writing. Separate analyses of academic growth are performed among Hispanic subgroups. The second set of research questions pertain to differences in course taking among Hispanics and non-Hispanic whites and blacks. These questions are answered by investigating enrollment in high school programs (academic, vocational, general) and academic credits earned in the new basics. Separate analyses of high school program enrollments and course taking are performed for Hispanic subgroups. The third set of research questions concerns influences that are associated with academic growth. These questions are addressed through analyses designed to determine the relationship of academic credits to academic growth independent of other variables that influence growth from the sophomore to the senior year. The outcome measures of academic growth are senior year scores in vocabulary, reading, mathematics, science, and writing adjusted for sophomore level performance. The major variables that are related to academic growth are student background (sex, SES, educational aspirations), language (home language, language use, language proficiency), and academic credits (Carnegie units in academic course areas defined by the new basics).

II. ACADEMIC GROWTH FROM THE SOPHOMORE TO SENIOR YEAR

The prevailing impression from prior research is that Hispanic achievement in high school subject areas tends to be lower than that among non-Hispanic whites (Duran, 1983; CES, 1982). Cross-sectional data from grade 10 to 12 also suggest that Hispanic students become increasingly disadvantaged relative to whites. The achievement areas in which these findings have been reported include vocabulary, reading, and mathematics. These patterns in Hispanic test performance emerge despite the strong likelihood that Hispanic students remaining in high school by grade 12, although educationally disadvantaged, are a highly select group of academic performers relative to the substantial number of their Hispanic peers who dropped out earlier.

The present analyses were designed to add to this picture of achievement by identifying the pattern of academic growth among Hispanic and non-Hispanic whites and blacks in selected performance areas. Measures of academic growth show changes in achievement from the sophomore to the senior year. Based on prior studies, Hispanic performance is predicted to be below that of non-Hispanic whites in core achievement areas such as reading and mathematics. What needs to be determined is whether the growth rate of high school achievement in all academic areas is different for Hispanics and non-Hispanics. Information is also needed on the variation in academic growth among Hispanic subgroups.

The specific research questions addressed in these analyses were as follows:

- What is the Academic Growth Among Hispanics and Non-Hispanics? What differences are there among Hispanic subgroups compared with non-Hispanic whites and blacks concerning academic growth? Are there differences among Hispanic subgroups?

- Do the Differences in Academic Growth Between Hispanics and non-Hispanics Vary with Achievement Areas? What differences are there in academic growth for Hispanics and non-Hispanics in different achievement areas such as vocabulary, reading, math, science, and writing? Are there differences among Hispanic subgroups?

The areas in which academic growth was assessed in this study were vocabulary, reading, mathematics, science, and writing. The science, writing, and parts of the mathematics test were designed to be particularly sensitive to the affects of instruction.

The mean score reported in these analyses of academic growth is an Item Response Theory (IRT) score which was computed from weighted data. The IRT score is a raw score adjusted for guessing, item difficulty, and item discriminating power. For each area of achievement, the mean sophomore and senior level test scores are shown accompanied by a measure of the academic growth. Academic growth was defined here as the absolute change between the sophomore and senior year divided by the sophomore year standard deviation, to form the basis of the index of academic growth. Academic growth is a standardized measure of change expressed in terms of IRT scores.

The changes on this IRT index of academic growth, used in this section, can be interpreted in approximately the same way as academic growth on the raw score distribution. The difference between this IRT index of academic growth and an index based on raw scores is that the IRT values have a slightly lower mean than the raw scores due to the adjustments for guessing and other factors. Another interpretation of academic growth derives from the conversion to standard deviation units. Assuming a standard deviation of 5.0, as is typical of most of these tests, an academic growth index of .2 would be equivalent to a change of one test item (5.0 x .2). An academic growth index of .4 would be equivalent to a change of two test items. There is no established convention for the practical significance of standardized measures of academic growth. For convenience, the index of academic growth will be described as small if it is at least .2 but less than .4, moderate if it is at least .4 but less than .6, and large if it is .6 or more. The same principle applies to differences among racial/ethnic groups in academic growth. That is, a difference of .2 but less than .4 in academic growth between Hispanics and non-Hispanic whites would be considered small. This approach is slightly more conservative than the approach used by Rock et al. (1984) but seems justifiable since a "small" change is equivalent to an increase of about one test item for most of these findings.

Academic Growth Among Racial/Ethnic Groups*

Hispanics tended to have as much academic growth from the sophomore to the senior year as non-Hispanic whites and blacks. Results presented in Table 1 indicate that the average achievement growth of Hispanics across all tests (vocabulary, reading, mathematics, science, and writing) did not differ from the average growth for non-Hispanic whites and blacks. Hispanics had greater academic growth than non-Hispanic whites on three of the five achievement tests. This finding is shown graphically in Figure 1.

The level of academic achievement of Hispanics was consistently below the average achievement of non-Hispanic whites at both the sophomore and the senior level. The achievement advantage of non-Hispanic whites was evident on the average achievement score and on all individual tests. The achievement differences between Hispanics and non-Hispanic whites at the senior level were statistically significant with p less than .01 on the score for average achievement (t=4.19, df=9782) and on the tests of vocabulary (t=4.38,df=9322), reading (t=3.50,df=8840), mathematics (t=5.08, df=8484), science(t=4.17,df=9098), and writing(t=3.03,df=8633). The modest advantage

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* Standard errors for t's shown in this portion of the text are given in table on page 22.

Table 1

Academic Growth from the Sophomore to the Senior Year by Race/Ethnicity and Achievement Area: 1980 High School Sophomores

Achievement Area	Racial/ Ethnic Group (a)	IRT Scores Sophomore Mean	SD	Senior Mean	SD	Academic Growth
Average Achievement	Hispanic	7.2	4.2	8.8	4.9	.39
	Black	6.3	4.0	8.0	4.6	.39
	White	4.4	4.3	12.3	5.0	.34
Vocabulary	Hispanic	6.4	4.5	8.2	5.4	.40
	Black	5.4	4.3	7.3	4.9	.46
	White	9.9	4.8	12.1	5.0	.46
Reading	Hispanic	5.4	3.7	6.6	4.3	.33
	Black	5.1	3.6	6.0	4.0	.24
	White	8.3	4.4	9.5	4.7	.30
Mathematics	Hispanic	9.8	7.5	11.8	8.7	.27
	Black	8.3	6.9	10.3	8.1	.28
	White	15.9	8.8	17.9	9.7	.23
Science	Hispanic	6.8	3.9	7.7	4.2	.23
	Black	5.8	3.6	6.4	3.8	.19
	White	10.1	4.0	11.0	4.0	.23
Writing	Hispanic	7.2	4.1	9.1	4.4	.45
	Black	6.5	4.1	8.1	4.2	.39
	White	10.0	4.3	11.6	4.2	.37

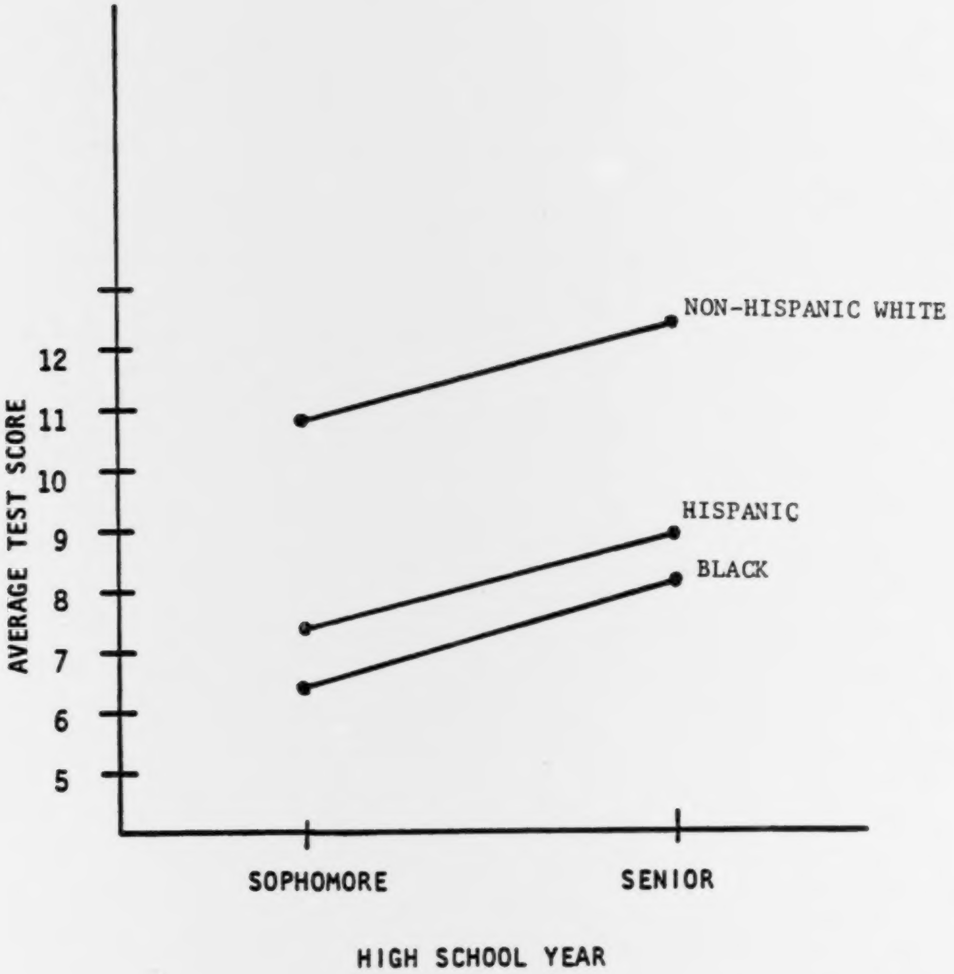
(a) The total number of cases was as follows: Hispanics (2,362), Blacks (2,471), Whites (10,014). However, the number of cases with completed tests at both the sophomore and the senior year varied depending on the test (see Appendix A).

(b) Academic youth coefficient were based on calculations such unrounded number asseying the following formula $(\bar{X}_1 - \bar{X}_2)/SD_1$.

FIGURE 1

AVERAGE ACHIEVEMENT* BY HIGH SCHOOL YEAR AND RACE/ETHNICITY

1980 HIGH SCHOOL SOPHOMORES



* ACHIEVEMENT WAS DEFINED AS THE AVERAGE OF IRT SCORES IN VOCABULARY, READING, MATHEMATICS, SCIENCE, AND WRITING

in academic growth for Hispanics on tests of reading, mathematics, and writing was insufficient to close the gap in senior year achievement between Hispanics and non-Hispanic whites that was evident at the sophomore level.

Academic Growth Among Hispanic Subgroups

There were only modest differences among the Hispanic subgroups on average achievement gain and on the individual achievement test gains. These findings, given in Table 2, shows that no single Hispanic subgroup was consistently superior across the different test areas to another subgroup with respect to the size of their academic growth from the sophomore to the senior year. Between-group differences in academic growth among the subgroups of Hispanics were all less than .20 and did not exceed one test item on most tests. The only exception to this pattern was in mathematics, where Cuban students gained more than Mexican students by about 1.9 test items. The larger difference on mathematics occurred because of a large standard deviation relative to the other tests. Results showing the average academic growth from the sophomore to the senior level among Hispanic subgroups are presented in Figure 2.

Cuban students consistently scored higher than other Hispanic subgroups across all achievement measures at both the sophomore and the senior levels. Typically Cubans score highest and either Mexican or Puerto Rican students score lowest across all tests. The difference in senior year achievement between Cuban and Mexican students was statistically significant at p less than .01 only for mathematics ($t=3.35$, $df=924$)*.

Summary and Discussion

Hispanics at tenth grade have an educational disadvantage that is not overcome by the senior year despite an academic growth rate in most achievement areas that is comparable to that of non-Hispanic whites. The average achievement of Hispanics was substantially below that of non-Hispanic whites at both the sophomore and the senior level. Although all groups gained in achievement from the sophomore to the senior year, the academic growth made by Hispanics was insufficient to overcome their initial disadvantage.

While Hispanics did not gain enough to overcome their initial educational disadvantage, at least the disadvantage did not increase. That is, the relative educational disadvantage of Hispanics to non-Hispanic whites was approximately the same at both the sophomore and the senior level.

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* Standard errors for t's shown in this portion of the text are given in table on page 22.

Table 2

Academic Growth from the Sophomore to the Senior Year by Hispanic Subgroup and Achievement Area: 1980 High School Sophomores

Achievement Area	Hispanic Subgroup	IRT Scores Sophomore Mean	SD	Senior Mean	SD	Academic Growth
Average Achievement	Mexican	6.9	4.1	8.4	4.8	.38
	Cuban	9.0	4.7	11.2	5.3	.47
	Puerto Rican	6.0	3.7	7.4	4.6	.38
	Other Hispanic	8.2	4.4	10.0	4.9	.43
Vocabulary	Mexican	6.1	4.3	7.6	5.3	.37
	Cuban	8.6	5.4	10.3	5.7	.31
	Puerto Rican	5.8	4.4	7.6	5.6	.41
	Other Hispanic	7.1	4.4	9.2	5.1	.46
Reading	Mexican	5.1	3.6	6.3	4.2	.34
	Cuban	7.7	4.8	8.8	5.3	.24
	Puerto Rican	5.3	3.9	6.4	4.3	.28
	Other Hispanic	5.6	3.6	6.9	4.3	.37
Mathematics	Mexican	9.5	7.3	11.1	8.1	.22
	Cuban	13.7	8.5	17.2	9.5	.40
	Puerto Rican	8.5	6.6	10.5	9.3	.31
	Other Hispanic	10.3	7.7	12.7	8.9	.32
Science	Mexican	6.4	3.8	7.3	4.1	.23
	Cuban	7.8	4.9	9.1	5.1	.28
	Puerto Rican	6.4	3.9	7.1	4.6	.20
	Other Hispanic	7.7	3.6	8.6	3.7	.26
Writing	Mexican	7.3	4.0	9.1	4.1	.47
	Cuban	9.1	4.6	11.3	4.5	.47
	Puerto Rican	6.1	3.8	8.4	4.3	.61
	Other Hispanic	7.1	4.0	9.0	4.8	.48

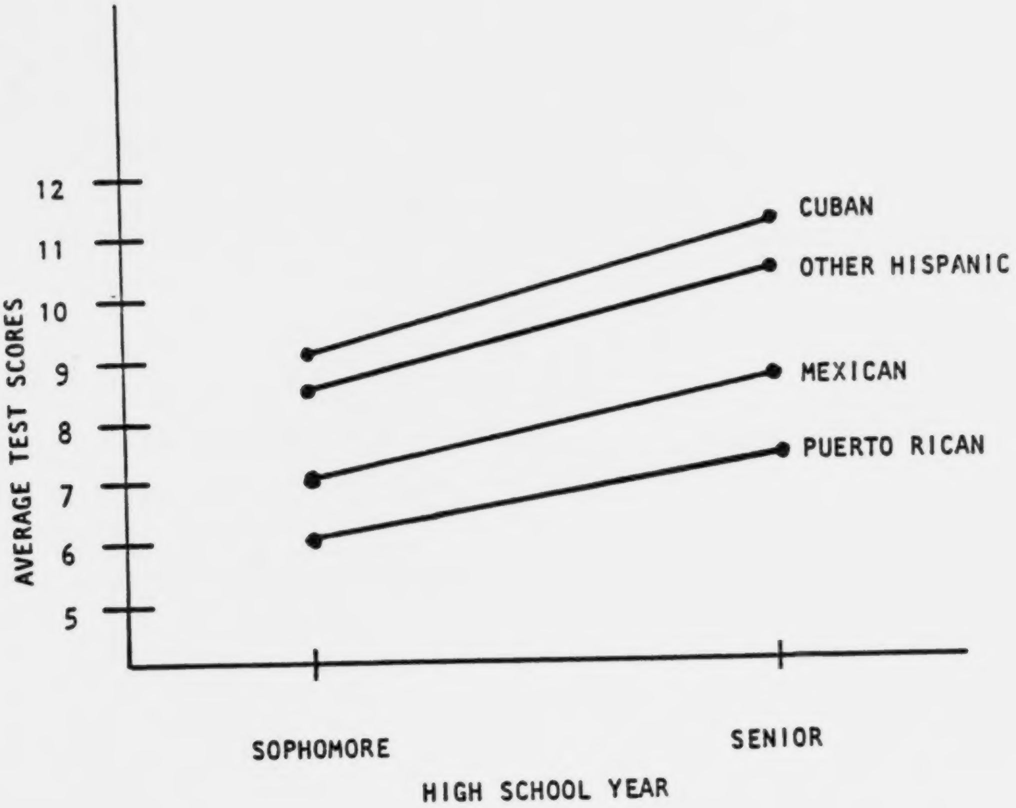
(a) The total number of cases was as follows: Mexicans (1426), Cubans (252), Puerto Ricans (336), Other Hispanics (348). However, the number of cases with completed tests at both sophomore and the senior year varied depending on the test (see Appendix A).

(b) Academic youth coefficient were based on calculations such unrounded number asseying the following formula $(\bar{X}_1 - \bar{X}_2)/SD_1$.

FIGURE 2

AVERAGE ACHIEVEMENT* BY HIGH SCHOOL YEAR AND HISPANIC SUBGROUP

1980 HIGH SCHOOL SOPHOMORES



* ACHIEVEMENT WAS DEFINED AS THE AVERAGE OF IRT SCORES IN VOCABULARY, READING, MATHEMATICS, SCIENCE, AND WRITING

Significance of Differences Between Hispanics and Whites on Grade 12 Achievement

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Achievement Area	Racial/Ethnic Group	n	Mean	SD	SE	t
Average Achievement	Hispanic	1638	12.34	4.99	.12	4.19
	White	8145	8.81	4.95	.06	
Vocabulary	Hispanic	1448	8.2	5.4	.14	4.38
	White	7875	12.1	5.0	.06	
Reading	Hispanic	1353	6.6	4.3	.12	3.50
	White	7438	9.5	4.7	.05	
Math	Hispanic	1247	11.8	8.7	.25	5.08
	White	7238	17.9	9.7	.11	
Science	Hispanic	1433	7.7	4.2	.11	4.17
	White	7666	11.0	4.0	.05	
Writing	Hispanic	1334	9.1	4.4	.12	3.0
	White	7300	11.6	4.2	.05	
p.19	Cubans and Mexicans					
	Cuban	197	17.2	9.5	1.89	3.35
	Mexican	219	11.1	8.1	1.42	

III. COURSE TAKING ACTIVITIES

Recent studies reveal strong differences between Hispanic and non-Hispanic white students in the courses taken during high school (e.g., Duran, 1983; Owings & Fetters, 1984). Relative to non-Hispanic whites, Hispanic students tend to be overrepresented in vocational high school programs and underrepresented in academic high school programs. They also tend to take fewer courses in such core subjects as English and mathematics.

This section provides additional information about types of courses taken in high school by Hispanic students. Two types of course taking activities are analyzed: high school program (academic, vocational, general), and credits earned in the new basics. Differences in course taking between Hispanics and non-Hispanic whites and blacks and among Hispanic subgroups are emphasized. Hispanic subgroups differentiated for the analysis are Mexican, Cuban, Puerto Rican, and Other Hispanic students. Findings are also presented on the proportion of students who drop out between the sophomore and the senior year.

Courses taken as part of the new basics are of particular interest in these analyses because the National Commission on Excellence in Education (NCEE) had defined the course content in these areas as essential for all students graduating from high school (NCEE, 1983). Courses included in the new basics are English, mathematics, physical and biological sciences, social sciences, and computer sciences and for college bound students, foreign languages. Data on foreign languages are not included in the present analyses because the interest in this study is in the general secondary school population.

The specific research questions addressed in this section are as follows:

- What are the Differences Between Hispanics and non-Hispanics in High School Program Enrollment? Are there differences in high school program (academic, vocational, general) between Hispanics and non-Hispanics? Are there differences in high school program among Hispanic subgroups?

- What are the Differences Between Hispanics and non-Hispanics in Number of Credits in the New Basics? Are there differences in the earned credits earned toward the new basics between Hispanics and non-Hispanics? Are there differences among Hispanic subgroups?

In the following sections, analyses are presented of high school program enrollments and mean Carnegie units in the new basics. High school program is differentiated into three categories: academic, general, or vocational. Information on high school program is based on the student's self-report during the first follow-up data collection. The percentage of students enrolled in each type of program from different racial/ethnic categories is presented in the analyses. Mean Carnegie units in the new basics were derived from the high school transcript data and are presented for each of the core course areas identified by NCEE. All figures presented are based on weighted estimates.

High School Program*

Enrollment in an academic high school program is expected to equip students for entry into college and to provide more advanced instruction in basic subject areas than would be obtained in non-academic programs. Students from academic programs who subsequently apply for college admission will presumably be in a stronger position than those from general or vocational programs. Enrollment in a high school vocational programs may result from a self-selection process or an imposed tracking system as part of explicit or implicit school policies about students who perform poorly. Assignment to a vocational program could result from an arbitrary school decision based on a student's race/ethnicity. The analyses which follow will focus on determining differences between Hispanics and non-Hispanics and among Hispanic subgroups in high school program.

By their senior year, proportionately fewer Hispanics than non-Hispanic whites are enrolled in academic programs. These findings are presented in Figure 3. An estimated 31 percent of Hispanics were enrolled in academic programs compared to 45 percent of non-Hispanic whites and 35 percent of blacks. In contrast, approximately 52 percent of Hispanics and 51 percent of blacks reported being enrolled in vocational programs compared to 34 percent of non-Hispanic whites. The difference in academic program enrollments between Hispanics and non-Hispanic whites was statistically significant at p less than .01 (t=6.82, df=10835).

These findings are generally consistent with results presented in other studies, such as the Hispanic Policy Development Project (HPDP, 1984). However, the proportional representation of Hispanics in the various high school programs was different in the HPDP report. In the HPDP report, an estimated 35 percent were in vocational programs, and 40 percent were in general programs. The HPDP report was also based on HS&B data. The differences between the HPDP study and the present findings could be due to the use of different subsamples in the two studies (the test file was used in the HPDP project, whereas a subset of the transcript file was used in the present study), or to different definitions of the Hispanic sample (the National Opinion Research Center, which performed the data collection for HS&B, used two different definitions of Hispanic at different points in time). Differences between the present analyses and the HPDP findings could also be due to the inclusion of dropouts in the study reported here. However, unpublished analyses of HPDP data (Valdivieso, 1985) indicate that most of the Hispanic dropouts were enrolled in general rather than academic programs. Thus, this explanation should be ruled out.

Analyses of differences in high school program enrollments among Hispanic subgroups indicated that Cuban students were enrolled in academic programs

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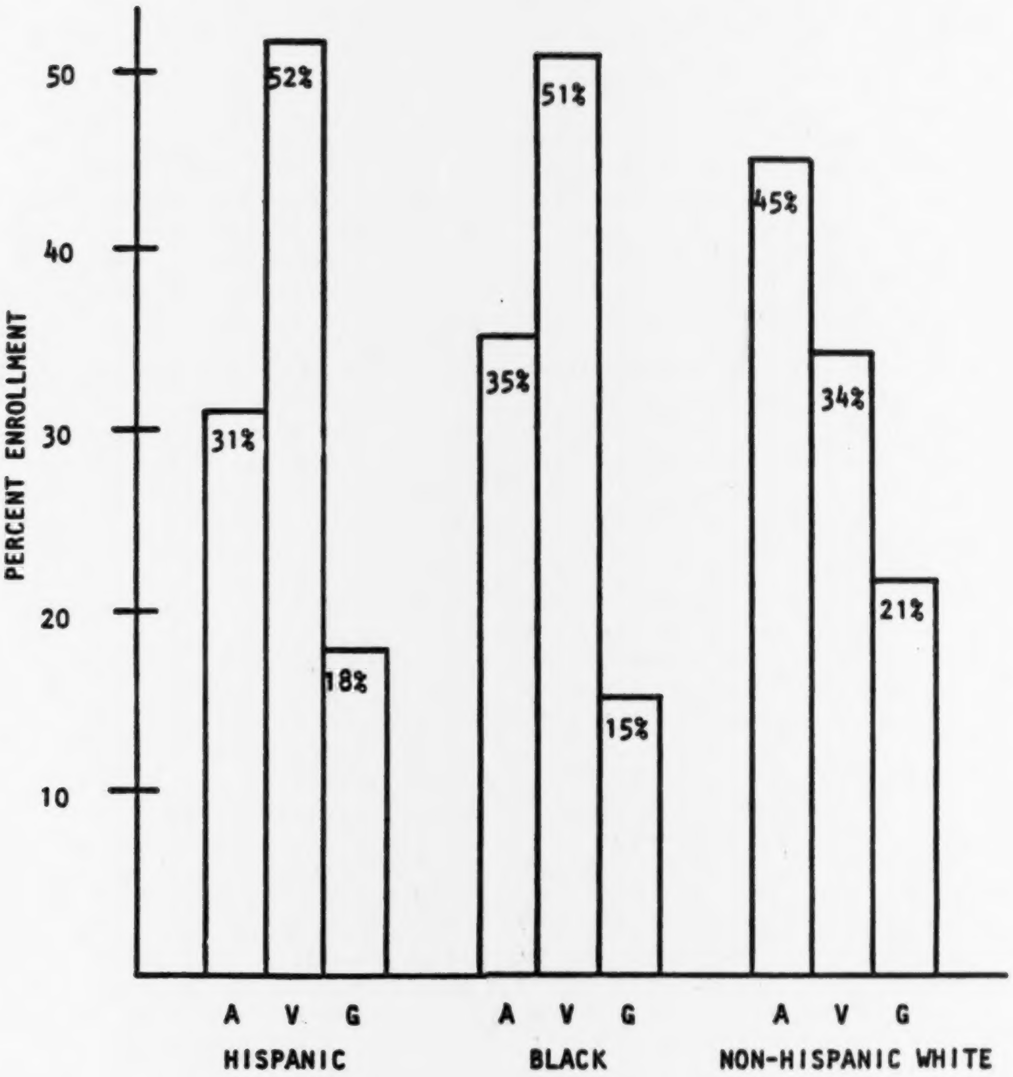
*Standard errors for t's shown in this portion of the text are given on page page 31.

FIGURE 3

PERCENT SENIOR YEAR ENROLLMENT IN ACADEMIC (A), VOCATIONAL (V), AND GENERAL (G) PROGRAMS BY RACE/ETHNICITY

1980 HIGH SCHOOL SOPHOMORES



far more than any other Hispanic subgroup. These results are presented in in Figure 4. Approximately 26 percent of Mexican students were enrolled in academic programs compared with 53 percent of Cuban students, 35 percent of Puerto Rican students, and 34 percent of Other Hispanics. In contrast, an estimated 53 percent of Mexican students were enrolled in vocational programs compared with 29 percent of Cubans, 52 percent of Puerto Ricans, and 53 percent of other Hispanics. The difference in academic enrollments between Mexicans and Cubans was statistically at p less than .01 (t-3.94, df-1420).

Academic Credits in the New Basics*

Further indication that Hispanics were less likely than non-Hispanic whites to participate in academic programs was obtained in an analysis of credits earned in the new basics. By their senior year Hispanics had earned fewer credits in the new basics than did non-Hispanic whites. These findings are shown in Figure 5. The new basics were part of the minimum requirements for high school graduation recommended by the National Commission on Excellence in Education (1983) and include English, mathematics, science, social studies, and computer sciences. One Carnegie unit is the equivalent of one full year of course enrollment.

Findings presented in Figure 5 indicate that Hispanics had approximately 8.1 Carnegie units in the new basics or the equivalent of four full years at about two Carnegie units per year. In contrast, non-Hispanic whites had an estimated 10.2 Carnegie units or approximately one full year of course enrollments more than Hispanics. The difference between Hispanics and non-Hispanic whites was statistically significant at p less than .05- (t-2.40, df-12239).

Analyses of findings of Hispanic subgroups revealed that Mexicans had completed 8.3 Carnegie units in academic areas compared with 8.7 units for Cubans, 7.0 units for Puerto Ricans, and 8.5 units for Other Hispanics. These findings are also shown in Figure 5. None of the differences among Hispanic subgroups was statistically significant.

Dropouts. Analyses of dropout data are presented in this section to gain a further perspective on the limitations on Hispanic participation in academic programs. The preceding sections have indicated that proportionately fewer Hispanics enroll in academic programs, and Hispanics earn fewer academic credits in comparison to non-Hispanic whites. In addition, between the sophomore and the senior year, Hispanics drop out of school in proportionately greater numbers than do non-Hispanic whites. Approximately 21 percent of all Hispanics dropped out of school between the sophomore and the senior years compared with an estimated 16 percent of blacks and 12 percent of non-Hispanic whites. These results are presented in Figure 6. The figures on Hispanic dropout are consistent with the findings in other studies.

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*Standard errors for t's shown in this portion of the text are given on page page 31.

FIGURE 4

PERCENT SENIOR YEAR ENROLLMENT
IN ACADEMIC (A), VOCATIONAL (V), AND GENERAL (G)
PROGRAM BY HISPANIC SUBGROUP:
1980 HIGH SCHOOL SOPHOMORES

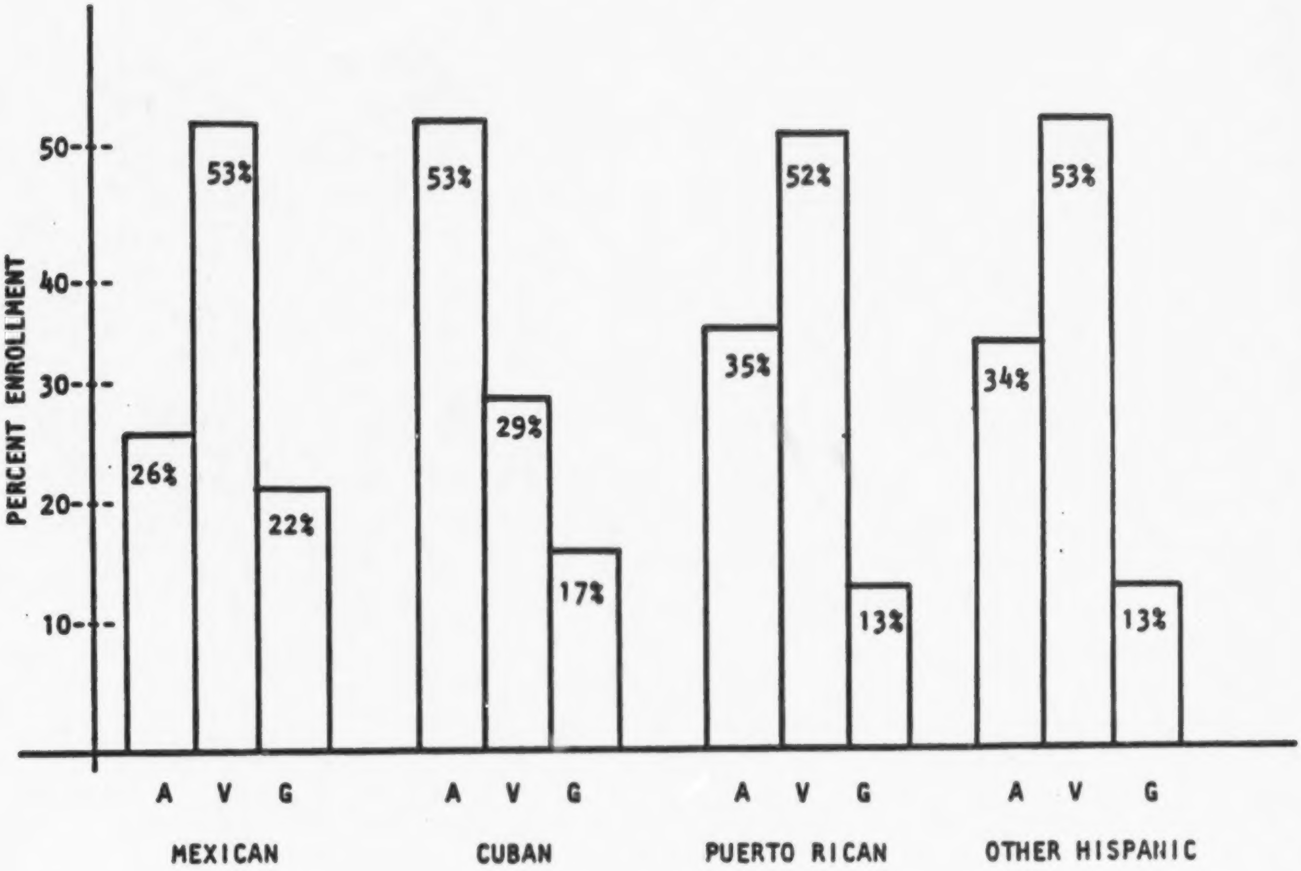
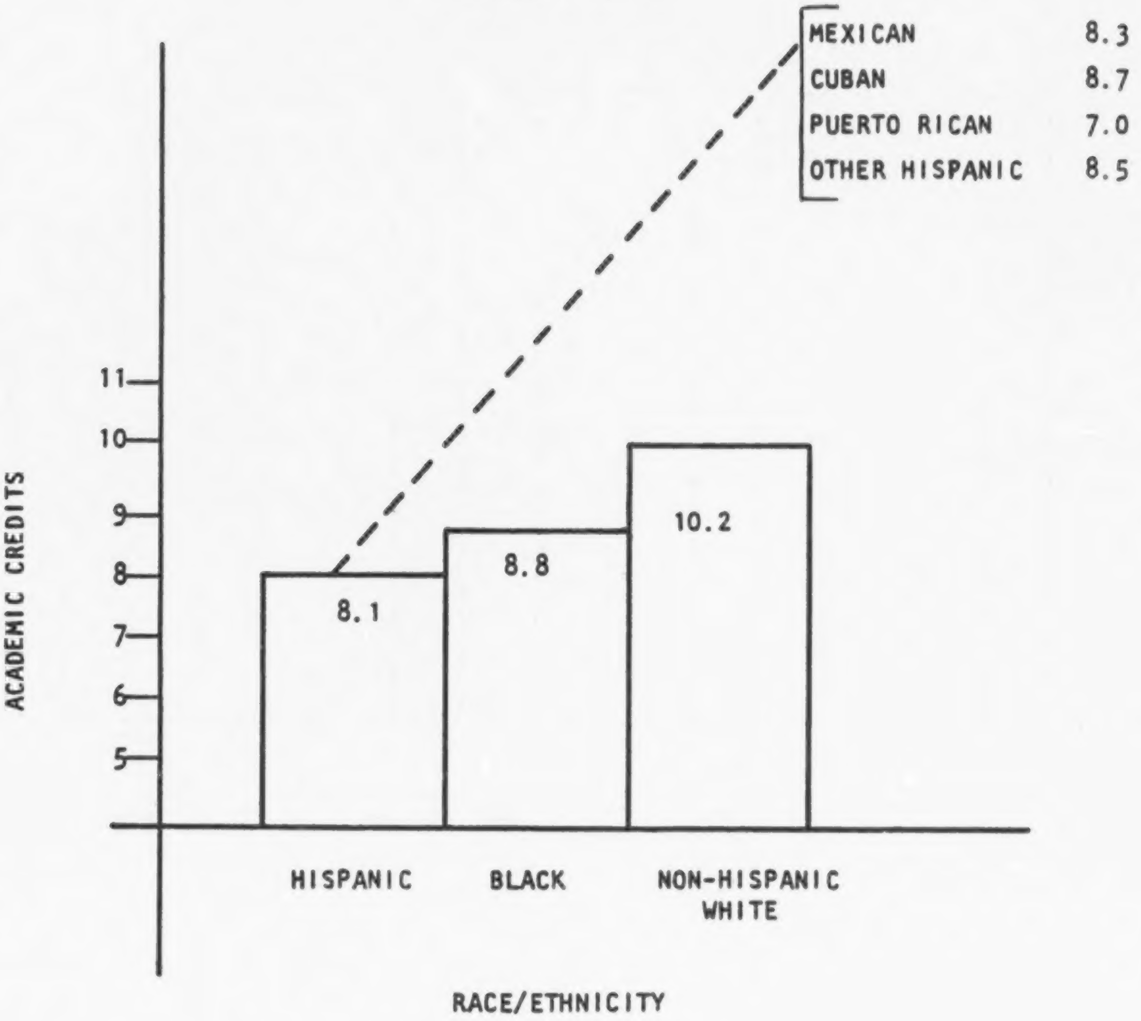


FIGURE 5

AVERAGE NUMBER OF CREDITS EARNED IN THE NEW BASICS BY RACE/ETHNICITY

1980 HIGH SCHOOL SOPHOMORES

GRADES 9 TO 12



The dropout rates between the sophomore and the senior year for Hispanic subgroups indicated that an estimated 23 percent of Mexican students dropped out compared with 20 percent of Cubans, 28 percent of Puerto Ricans, and 13 percent of Other Hispanics. These findings are also presented in Figure 6.

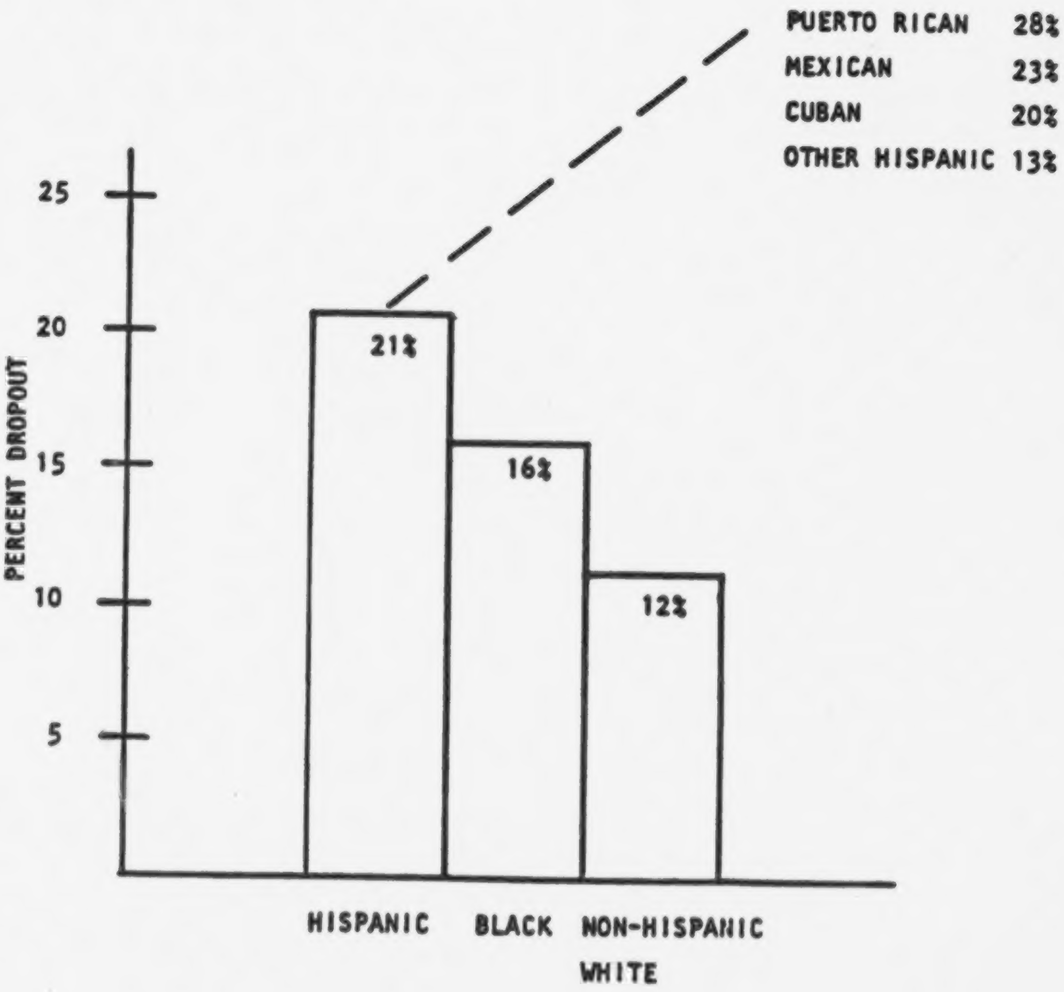
Summary and Discussion

Hispanic self-reported enrollment in academic high school programs was proportionately less than reported by non-Hispanic whites. This finding was consistent with transcript data indicating that Hispanics earned fewer academic credits in the new basics than did non-Hispanic whites. Furthermore, Hispanics drop out of high school between the sophomore and senior years in proportionately greater numbers than non-Hispanic whites.

For Hispanics to raise the average level of education, not only must large numbers enroll in academic programs but they must complete program requirements. Completion of high school and enrollment in academic programs are important credentials for eligibility to higher education.

FIGURE 6

PERCENT DROPOUT BY RACE/ETHNICITY
FROM GRADE 10 TO GRADE 12
1980 HIGH SCHOOL SOPHOMORES



Significances of Differences Between Groups on Enrollment in Academic Programs

	Group	n	Percent Enrollment	SE	t
p. 24	Hispanic	2003	.30	.00010	6.82
	White	8833	.45	.00003	
p. 26	Mexicans	1199	.25	.00016	3.94
	Cubans	222	.53	.00112	

Significance of Differences Between Groups on Carnegie Units

	Group	n	Mean Units	SD	SE	t
p. 26	Hispanic	2332	8.1	4.03	.08	2.41
	White	9908	10.2	3.87	.04	

p. 38 see printouts
p. 39 see printouts
p. 41
p. 42

IV. INFLUENCES ON ACADEMIC GROWTH

Studies of the influences on academic achievement by Hispanics have focused on the independent effects of socioeconomic background (SES) and home language as a means of determining the importance of compensatory as contrasted with language-based educational approaches. Virtually none of the studies has focused on the effects schooling has on secondary level Hispanic academic achievement or growth. Only one study focused on the impact of dual language programs on English language skills (Chan & So, 198-2).

The present study goes beyond prior research by focusing directly on the relationship between credits earned and academic growth of Hispanics independent of the influence of background, language, and prior achievement. In so doing, the study addresses questions about the relative importance of SES and language factors in the context of the importance of academic course work. Data are analyzed at two points in time for the HS&B sophomore cohort: in the base year and in the first follow-up year when they became seniors. This investigation looks at the effects of academic credits on a series of outcome measures of academic growth including vocabulary, reading, math, science, and writing.

The research questions addressed in these analyses are as follows:

- What Influences are Associated with Academic Growth? What is the relationship of credits earned to academic growth for Hispanic students as contrasted with non-Hispanic whites and blacks? What is the relationship within Hispanic sub-groups? Is course taking associated with academic growth independent of SES and language background or other student characteristics?

- What are the Specific Relationships of Language Variables and SES to Academic Growth? Are language background and language proficiency more important than SES in explaining differences in academic growth between Hispanics and non-Hispanics and differences among Hispanic subgroups?

Academic growth is defined in this section as the senior year IRT score on each test (vocabulary, reading, mathematics, science, writing) adjusted for sophomore level achievement. The adjustment removes from the senior level achievement any influence due to initial sophomore performance.

The relationship of credits earned to academic growth is analyzed in two ways in this study. The first reveals the marginal contribution to the total variation in grade 12 achievement scores made by academic credits, independent of the influence of grade 10 achievement or other predictors. The second indicates the strength of the relationship between academic growth and academic credits independent of grade 10 achievement, student background, language characteristics, and race/ethnicity. In this analysis, grade 12 achievement is adjusted for initial differences among students at grade 10, thereby removing from grade 12 achievement any variation associated with sophomore level performance.

All analyses discussed in this section are multiple regression analyses of the relationship between a single dependent variable and a set of predictors. The dependent variable is academic growth from grade 10 to grade 12. The predictors are defined in terms of a conceptual model which suggests that grade 12 achievement is associated with initial achievement in grade 10, student background (socioeconomic status, sex, educational aspirations), home language background (the language spoken at home), the student's race/ethnicity or Hispanic subgroup membership, and the number of academic credits the students earn in core curriculum areas. A more precise definition of the predictors is as follows:

- Grade 10 Achievement--a student's average IRT achievement score in grade 10 across tests in vocabulary, reading, mathematics, science, and writing.
- Socioeconomic Status (SES)--a constructed variable based on father's occupation, father's education, mother's education, family income, and a set of items asking whether the student's family receives a daily newspaper, owns an encyclopedia or other reference books, or has access to other items which reflect the SES of the family (coded continuously).
- Sex--coded 1 for males and 2 for females, so that a positive relationship with grade 12 achievement would indicate that females scored higher.
- Educational Aspirations--the highest grade level the student expects to complete, coded continuously (high school, some college, college, college and beyond).
- Home Language Background--coded English Monolingual, English Dominant Bilingual, and Non-English Dominant Bilingual based on questions concerning the usual and other languages used in the home.
- English Proficiency--self-reported proficiency for reading and writing in English.
- Race/Ethnicity--Hispanic, non-Hispanic black, and non-Hispanic white.
- Hispanic Subgroup--Mexican, Cuban, Puerto Rican, and Other Hispanic.
- Academic Credits--the number of academic credits earned by the student in English, mathematics, and sciences (academic credits in social sciences and in computer sciences were not included because they did not differentiate between racial/ethnic groups).

These predictors were selected based on the following criteria: (a) direct relevance to the purposes of the study; (b) strength of relationship with the dependent variable; (c) lack of relationship with other predictors; and (d) response rate. In some cases, one criterion was compromised to satisfy another criterion. Home language had a modest relationship with the dependent variable but was important to address the purposes of the study. In other cases, the criteria were used to select among competing variables. Home language background was selected in the analysis in preference to language used by the student in speaking to parents and friends because the item response rate was lower for the individual's personal language use. Self-rated proficiency in English was not used in the analyses because it was positively associated with Grade 10 Achievement and had a low item response rate.

These findings are subject to the limitation that academic growth was only measured from the sophomore to the senior year. As was pointed out previously, the sophomore level score assessed the accumulated knowledge of ten years of prior exposure to school, whereas the senior level score assessed only two additional years exposure to school. The relationship between academic credits and growth therefore would be expected to be modest unless an unusually strong educational intervention were used in high school. The influence of strong interventions in isolated high school programs would be mitigated by averaging scores across all schools.

The findings are also subject to the limitation that the standardized regression coefficients, although statistically significant, may not have a great deal of practical significance. A standardized regression coefficient of 0.20, as in math, indicates that an increase of one standard deviation unit in academic credits (about 4.0 Carnegie units for all students) is associated with 0.20 standard deviation units in achievement (about one and a half test items, since the standard deviation of most population groups was about 8.0 on mathematics). That is, for every two years of academic credits in math (at 2 Carnegie units per year), the average student will increase about one and a half test items on the mathematics test. The typical gain in achievement associated with other test areas would be less because the standardized regression coefficients are smaller.

One further question about the findings concerns the capacity of the measuring instruments to reflect change. The small academic growth associated with increased academic credits could be due to characteristics of the measuring instruments rather than characteristics of students or of academic courses. If the item content did not measure the content of high school curricula in each test area, the tests fail to have content validity. Although the science, writing and portions of the mathematics tests were purportedly designed to reflect high school curricula, the success with which the instruments accomplished this goal may have been less than desirable.

Predictors of Grade 12 Achievement

Achievement in the sophomore year explained more variation in grade 12 achievement than any other single predictor. These findings are illustrated in Figure 7. An estimated 33.6 percent of the total variance

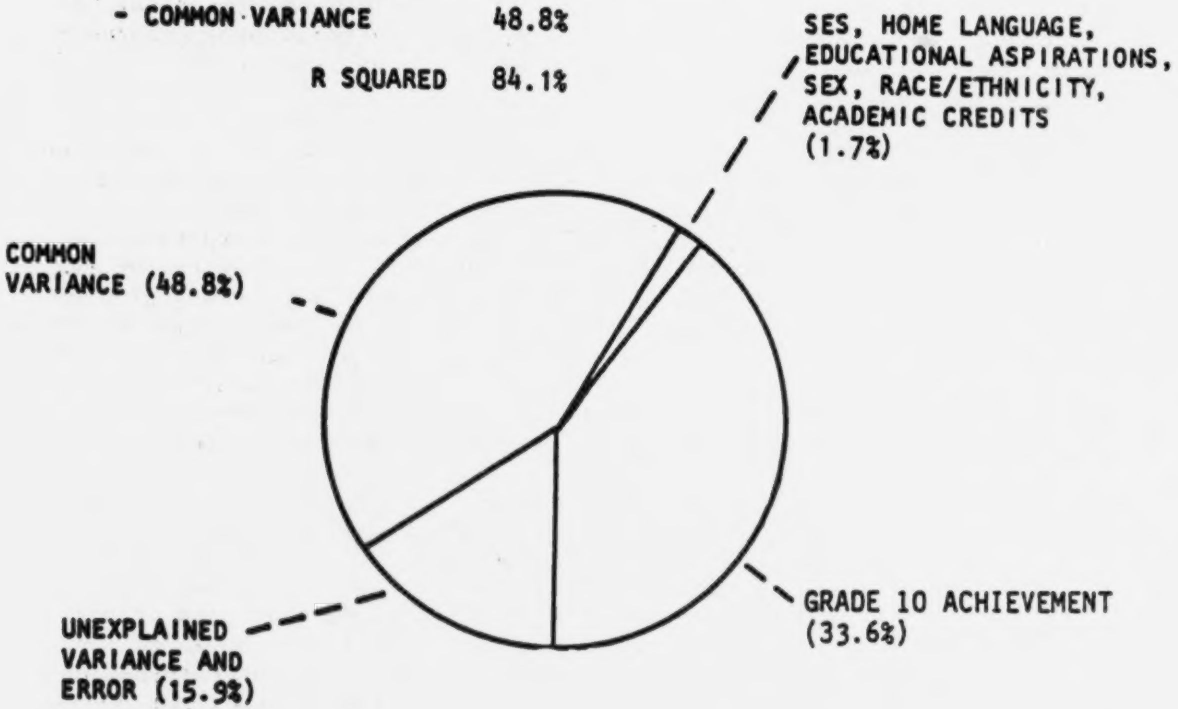
FIGURE 7

INFLUENCES ON AVERAGE GRADE 12 ACHIEVEMENT* FOR TOTAL POPULATION

1980 HIGH SCHOOL SOPHOMORES

EXPLAINED VARIATION

- GRADE 10 ACHIEVEMENT	33.6%
- SES, HOME LANGUAGE, EDUCATIONAL ASPIRATIONS, SEX, RACE/ETHNICITY, ACADEMIC CREDITS	1.7%
- COMMON VARIANCE	48.8%
R SQUARED	84.1%



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* ACHIEVEMENT WAS DEFINED AS THE AVERAGE OF IRT SCORES IN VOCABULARY, READING, MATHEMATICS, SCIENCE, AND WRITING

in senior year achievement is associated with student performance in the sophomore year. This means that 33.6 percent of the variance in senior year achievement is explained by achievement in the sophomore year alone apart from that which may be explained by achievement in the sophomore year in its relationship with all other variables in the equation. A total of 1.7 percent of the total variance beyond the variance explained by sophomore achievement is explained by all other predictors of grade 12 achievement used in the analysis. These other predictors included SES, sex, educational aspirations, home language background, race/ethnicity, and academic credits (Carnegie units) was explained by simultaneous "interactions" among all the variables in the equation. This consists of elements common to all and may be termed "common variance". An additional 48.8 percent of the variance in senior year achievement was common to these variables together. The predominant influence of grade 10 achievement on achievement in grade 12 was found consistently for individual tests of vocabulary, reading, mathematics, science, and writing. The findings for average achievement and for the individual test scores on the total group of Hispanics and non-Hispanics are shown in Table 3.

Among Hispanic subgroups, the variable most strongly associated with grade 12 achievement was achievement in grade 10. Thus, the findings for Hispanics subgroups were essentially the same as for the total group although the exact percentage of variance explained by individual predictors was slightly different. These findings are shown in Table 4.

The large proportion of variation in grade 12 achievement that is explained by achievement in grade 10 can be related to two factors. First, the grade 10 score reflects ten years of learning that has occurred up through the sophomore year of school. An additional two years of school exposure would not be expected to produce substantial new variation in achievement scores. Second, the correlation between grade 10 and grade 12 scores was high and positive (about .70 to .80, depending on the test) indicating that the tests have strong stability over two years' time. This means that the rank order position of students does not change appreciably on achievement between grades 10 and 12. The rank order of Hispanics would need to change considerably if Hispanics were to have more academic growth than non-Hispanic whites. There is little indication that instructional influences, at least as measured by academic credits, have the kind of leverage that would be required to effect this change within this two year period.

Relationship of Predictors to Grade 12 Achievement

Although the predominant predictor of grade 12 achievement was achievement level in grade 10, some of the other predictors nevertheless had statistically significant relationships with grade 12 achievement. These results are shown in Table 5 for the total group of students. Table 5 contains standardized coefficients from the regression equation with grade 12 achievement as a dependent variable and the following set of predictors: grade 10 achievement, SES, sex, educational aspirations, home language background (English dominant, non-English dominant), race/ethnicity (Hispanic, black), and academic credits in the new basics (English, mathematics, and sciences). Standardized regression coefficients are the same as

Table 3

Percent of Variance in Grade 12 Achievement
Attributable to Selected Influences
By Achievement Area:
1980 High School Sophomores

Influence on Grade 12 Achievement	Average Achievement	Vocab	Rdng	Math	Science	Writing
Grade 10 Achievement	33.56%*	28.62%*	33.00%*	24.53%*	23.93%*	23.08%*
Socioeconomic Status	.04%*	.22%*	.01%	.02%*	.00%	.00%
Home Language	.00%	.05%*	.00%	.01%	.04%*	.02%
Aspirations	.58%*	.44%*	.31%*	.50%*	.12%	.82%*
Race/Ethnicity	.60%*	.25%*	.04%	.14%*	.95%*	.20%*
Academic Credits (a)	.38%*	.14%*	.07%*	2.59%*	.19%*	.48%*
n (b) = 14847						

* Significant at p less than .01

(a) Academic credits (Carnegie units) were selected from the following areas for each achievement measure: English (vocabulary, reading, writing), mathematics (mathematics), physical and biological sciences (science).

(b) The actual number of cases varied due to test nonresponse.

Table 4

Percent of Variance in Grade 12 Achievement Attributable to Selected Influences by Achievement Area for Hispanic Subgroups: 1980 High School Sophomores

Influence on Grade 12 Achievement	Average Achievement	Grade 12 IRT Scores				
		Vocab	Rdng	Math	Science	Writing
Grade 10 Achievement	36.05%*	31.16%*	29.17%*	26.61%*	26.90%*	25.26%*
Socioeconomic Status	.09%	.16%*	.03%	0.6%	.02%	.07%
Home Language	.01%	.20%	.06%	.03%	.07%	.34%*
Educ. Aspiration	1.33%*	1.08%*	1.15%*	1.00%*	.60%*	1.14%*
Hispanic Subgroup	.04%	.13%	.05%	.24%*	.10%	.45%*
Academic Credits (a)	.36%*	.13%	.18%*	1.89%*	.10%	.67%*
n = 2362 (b)						

* Significant at p less than .01

(a) Academic credits (Carnegie Units) were selected from the following areas for each achievement area: English (vocabulary, reading, writing), mathematics (mathematics), physical and biological sciences (science).

(b) The actual number of cases varied due to test nonresponse.

semi-partial correlations. In such coefficients, the independent influence of each of the variables is given without the duplicating influence of the other independent variables. These coefficients are calculated on the basis of their order in the variables list. The influence of all preceding variables is adjusted. The sequence of the predictors in Table 5 was prespecified to ensure that the relationship between academic credits and grade 12 achievement would be independent of other predictors.

In Table 5, academic credits have a positive and significant relationship to academic growth in all achievement areas independent of the influence of other variables. The strength of the relationship varies depending on the achievement area but is strongest by far in math and next strongest in writing and then science. These were the achievement tests that had been developed to reflect curricular content in high school.

Further inspection of the regression coefficients in Table 5 indicates that the relationship of race/ethnicity to academic growth varies depending on the subgroup and the outcome measure. For vocabulary, being Hispanic or black is negatively associated with academic growth relative to the reference group, non-Hispanic whites, once all other variables are controlled. In reading, being black has a significant positive effect on academic growth controlling for all other variables in the model. Thus, for students of comparable initial ability and background, black students gain more from the sophomore to the senior year than non-Hispanic white students. Analyses of academic growth in math indicate that both Hispanic students and blacks were at a significant disadvantage relative to the reference group, non-Hispanic white students. Comparable results were found in science.

The relationship of home language background with grade 12 achievement varies depending on the outcome measure. Whereas being from an English dominant household is associated with higher grade 12 vocabulary achievement in comparison to English monolingual students, being from a nonEnglish dominant household has a negative relationship with science achievement. The influence of SES is significant and positive on vocabulary and math, two of the important basic skill areas. Educational aspirations have a positive and significant effect on academic growth for all achievement areas. Results for sex of student indicate that being female has a negative effect on academic growth in mathematics and science and a positive effect for growth in writing. Finally, the contribution of grade 10 achievement to grade 12 achievement is strong and significant in all test areas.

These findings indicate that academic credits are positively associated with academic growth independent of the influence of background, home language, and race/ethnicity. This relationship was particularly strong in mathematics. Comparison of the standardized regression coefficients within each test area indicates that the relationship of academic credits to growth was generally stronger than any other influence except initial achievement level at grade 10 and educational aspirations.

Influence of SES and Language Background

The relationship of SES to academic growth and the corresponding relationship for language background controlling for other variables can be seen from inspection of Table 5. As was noted above, the relationship of SES and language background with academic growth depends on the test area and also on the type of home language used. SES had a strong and positive relationship to academic growth in vocabulary and math, but not in reading, science, or writing. Being from an English dominant bilingual home had a positive relationship to academic growth in vocabulary but not in reading, mathematics, science, and writing. Being from a non-English dominant home had a negative relationship to academic growth in science. Thus, there was no simple answer to questions about the relative importance of SES and home language in determining academic growth.

The influence of SES and home language was further analyzed by inspecting their contribution to the variance in grade 12 achievement independent of other variables in the analysis, as shown in Table 3. Portions of this table are reproduced here for convenience. The following table shows the contribution of SES and home language to the variation in grade 12 achievement independent of grade 10 achievement and all other variables included in the analysis.

TABLE 5A

Contribution of SES, Home Language, and Educational Aspirations to Grade 12 Achievement

Variable	Vocab	Rdng	Math	Sci	Writ
SES	.22%*	.01%	.02%*	.00%	.00%
Home Language	.05%*	.00%	.01%	.04%*	.02%
Educ. Aspirations	.44%*	.31%*	.50%*	.12%*	.82%*

The asterisk (*) in the table indicates that the variable explained a statistically significant percentage of grade 12 achievement. SES explained a significant proportion of the variation in grade 12 achievement for vocabulary and mathematics independent of the influence of grade 10 achievement and other variables in the analysis. Home language explained a significant proportion of the variation in grade 12 achievement on tests of vocabulary and science independent of the influence of other variables in the analysis. Although these values are statistically significant, the proportion of variance explained by SES and home language was less than one percent for each outcome variable. This picture indicates that the influence of SES and home language background on grade 12 achievement depends upon the outcome variable analyzed but generally tends to be modest when grade 10 achievement is included in the analysis.

Table 5

Standardized Regression Coefficients Predicting Grade 12 Achievement in Selected Areas from Race/Ethnicity and Schooling Independent of Pretest, Background, and Home Language: 1980 High School Sophomores

		Grade 12 IRT Test Area				
Predictor	Variable	Vocab	Reading	Math	Science	Writing
Pretest	Grade 10 Achvmnt	.71*	.76*	.68*	.68*	.63*
Back-ground	SES	.05*	.01	.02*	.01	.00
	Sex					
	Plans	.08	.07	.09	.04	.11*
Home Language	English Dominant	-.01	.01	.01	-.02	.02*
	Non-Eng Dominant	.02*	.00	.00	.01	.00
Race/ Ethnicity	Mexican	-.03*	.01	-.01	-.04*	.00
	Cuban	.00	.01	.01	-.02*	-.01
	Puerto Rican	-.00	-.00	-.02*	-.03*	-.02
	Other Hispanic	-.00	.00	-.01	-.01	-.01
	Black	-.05*	.02	-.04*	-.11	-.04*
Academic Credits	Carnegie Units	.04*	.03*	.20*	.05*	.07*
n = 14847 (a)						
Adj RSQ		.66	.62	.76	.64	.57

* Significant at p less than .01
(a) The actual number of cases varied due to test nonresponse.

Other Analyses

A number of exploratory analyses were conducted prior to the analyses presented above. These exploratory analyses are summarized in the following sections.

- Individual Language Use. One preliminary analysis contrasted individual language use and home language use as covariates in separate regression analyses. The results of both analyses were basically the same, but because the n-size was larger on the home language variable than on individual language use, home language was reported in the regression analyses above.

- Language Proficiency. Self-reported language proficiency in Spanish was excluded because it did not have substantial correlations with the dependent variables and was correlated with one or more of the other predictors in the model. Self-reported language proficiency data were also based on small numbers of cases in comparison to the home language data. More information on the bivariate correlations is presented in Appendix B.

- Length of Residence. Another variable that was considered for the regression analysis was length of residence. The bivariate correlations with grade 12 achievement were small for this variable so it was not included in the regression model.

- Dropout Status. Dropout status was added to the set of predictions in the preliminary analyses. The standardized regression coefficient was statistically significant in analysis of IRT senior achievement scores. This, however, requires further analysis.

- Interaction Between Race/Ethnicity and Academic Credits. One of the variables that was considered for inclusion in the regression analysis was the interaction of race/ethnicity and academic credits (Carnegie units) in the new basics. This analysis would determine if racial/ethnic groups profit differentially from the academic credits they earned. The proportion of the variation in academic growth explained by this interaction was small, however, and the variable was not included in the final regression model.

- Interaction Between Race/Ethnicity and Grade 10 Achievement. One of the interactions that was tested in the analysis was the interaction between grade 10 achievement and race/ethnicity. This analysis would determine if some racial/ethnic groups profit differentially depending on grade 10 achievement. This interaction was not statistically significant for any of the outcome variables.

- Academic Credits: Last Five Semesters Only. The regression analyses discussed above were performed using academic credits for all four years of high school. However, because the initial achievement tests were administered in the spring of the sophomore year, academic credits prior to that time (the first three semesters of high school) could have influenced the sophomore test score. To ensure that the analyses of grade 12 achievement were not distorted by the influence of the first three semesters course work on grade 10 achievement, all regression analyses were performed with the first three semesters of academic credits removed. The results were essentially the same as those discussed above. That is, the relationship of academic credits to grade 12 achievement was statistically significant but explained a very small proportion of the variation in grade 12 scores.

- Average Achievement: Math Excluded. The average achievement score used in the analyses discussed above was based on IRT scores in vocabulary, reading, mathematics, science, and writing. A simple average of these scores is subject to the limitation that the test with the largest variance will distort the average scores which are measured on different scales. All tests had comparable standard deviations (approximately between 4.0 and 5.0) except for mathematics (between 7.0 and 8.0). To ensure that the findings were not due to the influence of the mathematics test, the mathematics test was deleted from the average score and the regression analyses on average achievement were recomputed. The major findings were no different from those reported above although the specific relationships varied slightly depending on the test area.

Summary and Discussion

The first purpose of these analyses was to investigate the relationship of academic credits to academic growth of Hispanics independent of the influence of background, language, and prior achievement. A second purpose was to determine the relationship of SES and language background to academic growth. Academic credits had a positive and significant relationship with academic growth independent of the influence of other variables across all achievement areas. However, the proportion of variance in grade 12 achievement that was explained by academic credits independent of other variables in the analysis was small. The relationship of SES and language background with academic growth depended on the outcome measure. The percentage of grade 12 achievement explained by SES and language background was small, as it was for academic credits.

A number of implications for educational practice can be drawn from these findings. The educational disadvantage of Hispanic students in secondary schools begins prior to the time they enter grade 10. While Hispanic students tend to show academic growth which is favorable in comparison to non-Hispanic whites, at least in terms of changes in achievement scores from the sophomore to the senior year, they start out so far behind that even a greater degree of growth would still leave them behind the senior level scores of non-Hispanic whites. Thus, high school educational programs, while contributing to academic growth for Hispanics and non-Hispanics alike, appear inadequate to offset the disadvantage these student students experience from elementary and intermediate schools. Programs designed to offset the educational disadvantage of Hispanics at the secondary level probably should use both compensatory and language based approaches. There was no clear indication that one type of approach should be used to the exclusion of others. Because student educational aspirations are highly influential in determining academic growth independent of the influence of other background or language variables or tenth grade achievement, whatever schools can do to enhance a student's plan for further education at the onset of high school would seem to be a useful investment of effort.

V. SUMMARY AND CONCLUSIONS

This study was designed to investigate the academic growth of high school age Hispanics in comparison to non-Hispanic blacks and whites. The study examined the academic growth of these students from the sophomore to the senior year, the courses taken by Hispanic and other students, and the relationship of academic credits and other influences to academic growth. The study used data obtained from the High School and Beyond sophomores in 1980 and data supplied by the same individuals in 1982 when most of them were seniors.

This study is unique for a number of reasons. First, the results on Hispanic and other secondary age students are based on a longitudinal survey involving data collection in the sophomore and senior years. Second, the study uses achievement data from a number of academic areas including vocabulary, reading, math, science, and writing whereas most studies focus on literacy areas only. Third, because longitudinal data on achievement measures are available, the study analyzed data on academic growth from the sophomore to the senior year. Fourth, this study used high school transcripts to gain a complete record of the courses taken by students during their secondary school career, thereby permitting analyses of credits in academic areas. And finally, the availability of longitudinal information on academic credits and academic achievement created an opportunity to examine the relationship of academic credits to academic growth.

Findings from the study are presented on three major topics: (a) academic growth of Hispanic students in comparison to non-Hispanic whites and blacks; (b) course taking of Hispanic and non-Hispanic students; and (c) the relationship between course taking and other variables with academic growth. Each of these topics was examined for all racial/ethnic groups and for Hispanic subgroups only.

Academic Growth

The first analysis topic in this study was academic growth from the sophomore to the senior year in vocabulary, reading, mathematics, science, and writing. Academic growth for Hispanics was contrasted with academic growth for non-Hispanic white and black students. Comparisons were also made among Hispanic subgroups. Results identify the mean and standard deviation of the sophomore and senior level achievement scores, the change from the sophomore to the senior level, and an index of academic growth that consists of the absolute change divided by the sophomore year standard deviation.

Results indicated that the index of academic growth from the sophomore to the senior year among Hispanics was comparable to the growth by non-Hispanic whites and blacks. These findings were consistent across all test areas. Although Hispanics tended to gain as much as non-Hispanic whites, the sophomore and senior level achievement in Hispanics in all test areas was significantly below that of non-Hispanic whites. Because the academic growth of Hispanics was comparable to that of non-Hispanic whites, test scores of Hispanics were approximately the same amount below the scores of non-Hispanic whites at the senior level as they were at the sophomore level. Thus, while Hispanics did not catch up to the performance level of non-Hispanic whites, neither did they fall further behind.

Course Taking Activities

Course taking activities were determined from self-report on the high school program in which students were enrolled (general, academic, vocational). Course taking was also determined from transcript information on the number of academic credits (Carnegie units) the students had earned in the new basics. Results for academic credits also identify the number of Carnegie units in specific courses that are part of the new basics: English, math, science, social sciences, and computer sciences. These analyses focused on the nature and magnitude of the differences between Hispanics and non-Hispanic whites and among Hispanic subgroups. Hispanic students as a group enroll in academic programs proportionately less than non-Hispanic white students. Approximately 31 percent of Hispanics were enrolled in academic programs compared to 45 percent of non-Hispanic whites and 35 percent of blacks. In contrast, approximately 52 percent of Hispanics and 51 percent of blacks reported being in vocational programs compared to 34 percent of non-Hispanic whites.

Analyses of Hispanic subgroups indicated that about 26 percent of the Mexican students were enrolled in academic programs compared with 53 percent of the Cuban students, 35 percent of the Puerto Rican students, and 34 percent of the Other Hispanics. Thus, analyses of differences in high school program enrollments among Hispanic subgroups indicated that Cuban students were enrolled in academic programs proportionately more than any other Hispanic subgroup.

Hispanics had significantly fewer academic credits (Carnegie units) in the new basics than non-Hispanic whites. Hispanics earned about 8.1 Carnegie units in the new basics or the equivalent of four full years at two Carnegie units per year. In contrast, non-Hispanic whites earned an estimated 10.2 Carnegie units in the new basics or approximately one full year of course enrollments more than Hispanics.

Analysis for Hispanic subgroups revealed that Mexican students had completed 8.3 Carnegie units in academic credits compared with 8.7 units for Cubans, 7.0 units for Puerto Ricans, and 8.5 units for Other Hispanics. None of these differences among Hispanic subgroups was statistically significant.

Influences on Academic Growth

One of the purposes of this study was to determine the relationship between academic credits and academic growth independent of the influence of other variables. The other variables in the analysis were student background, home language, and race/ethnicity. The set of variables which defined student background consisted of socioeconomic status (SES), sex, and educational aspirations. A related purpose of this study was to determine whether the relationship between SES and academic growth was stronger than the relationship between home language background and academic growth.

Results indicated that academic credits were positively and significantly related to academic growth independent of the influence of grade 10 achievement, student background, home language, and race/ethnicity. However, academic credits explained less than 1 percent of the total variation in grade 12 achievement. The relationship between SES and academic growth varied depending on the outcome measure (vocabulary, reading, mathematics, science, or writing). The same was true of the relationship between home language background and academic growth.

Educational Implications

These results provide a general picture of the academic growth and high school education of Hispanic students in comparison to non-Hispanic whites and blacks. Hispanic students at the sophomore level have low scores in key areas for academic achievement in contrast to non-Hispanic whites. Hispanics participate disproportionately more in vocational high school programs as compared to academic programs. Over the years of secondary school, Hispanics also earn fewer academic credits in the new basics and in key areas such as English, math, and sciences. However, Hispanic students experience as much growth in academic achievement as non-Hispanics between the sophomore and the senior year. Because Hispanics start out so far behind non-Hispanic whites in achievement, however, they fail to perform at the senior year as well as non-Hispanic whites. The achievement difference between Hispanics and non-Hispanic whites is approximately the same at both the sophomore and the senior level, indicating that Hispanics do not fall further behind over the last two years of high school. The achievement of Hispanic students in grade 12 relative to non-Hispanic whites is probably limited by their achievement at the sophomore level. Two potential influences on academic growth that had modest but significant relationships with grade 12 achievement independent of the student's grade 10 achievement were educational aspirations and academic credits.

This picture probably reflects the experience of many students from Mexican, Puerto Rican, and Other Hispanic backgrounds. Cuban students appear different from this general depiction of Hispanics in secondary schools, in that they are proportionately more heavily enrolled in academic programs than other Hispanic subgroups. However, their performance in grade 12 is also influenced strongly by their performance in grade 10 independent of other influences such as background and academic credits.

Credits earned in high school may have an important function despite their small influence on academic growth from the tenth to the twelfth grade. Enrollment in academic programs is an important credential for eligibility to higher education. Larger numbers of Hispanics must enroll in academic programs, and must stay in school. Public policy toward Hispanics should be directed toward supporting achievement in the elementary and intermediate years, reducing the high school dropout rates, and increasing the participation of Hispanic in high school academic programs.

A number of avenues may be open to schools attempting to assist Hispanic students to progress more effectively through high school into careers requiring academic credentials. From the very onset of the student's contact with school, efforts can be made to identify Hispanics with educational disadvantages who can profit from special forms of English language or content area instruction. These may include basic skills instruction, language based programs, or content-based instruction designed for students with limited English proficiency. School assessment activities can identify Hispanic students with academic aptitudes that are not reflected in scores on English language based tests. Special efforts to raise educational aspirations may be one of the most effectively approaches the schools can take to assist Hispanic academic achievement. This may involve contact with parents or peer oriented activities in school where Hispanic students interact in structured learning opportunities with academically oriented students.

Implications for Research

One of the future directions that research on Hispanics in HS&B should take is to identify individual students with particularly large or particularly small academic growth. This research would determine if there are course-related experiences, other experiences, or student characteristics that differentiate the two groups. The search for meaningful school or other influences that differentiate Hispanics with high academic growth from Hispanics with low academic growth should be replicated on independent samples of students to ensure that the findings are valid. Another direction for research in HS&B is to identify in detail the quality and level of academic courses taken by Hispanics in comparison to non-Hispanic whites. That is, for equal numbers of Carnegie units, Hispanics may have taken less demanding academic courses than non-Hispanic whites. A related research direction is to identify the paths or sequences of course taking that are characteristics of Hispanics and non-Hispanics across the four years in high school.

Apart from research conducted specifically on HS&B, the search for meaningful academic influences on grade 12 achievement should begin before grade 10, since academic courses taken between grades 10 and 12 are shown to have little impact on senior year achievement. A related issue concerns the measurement instruments. The tests used to reflect academic achievement should all be designed to complement high school course content in areas such as mathmatics, sciences, and social studies. There should also be enough ceiling on the tests so that the academic growth of high scoring groups of students will not be obscured simply due to limitations of the measuring instruments.

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NOTE: All references to the National Center for Education Statistics (NCES) were formerly change to the Center for Education Statistics (CES).

APPENDIX A

METHODOLOGY

This chapter presents the detailed approach to the analysis of High School and Beyond (HS&B) data used in this study. The first section contains a general description of the HS&B survey highlighting the features of the study that are important for the analysis of course taking, academic growth, and influences on academic growth for Hispanics. The second section describes the specific procedures used to identify the subsample selected for these analyses from the broader HS&B survey. The third section presents a brief discussion of the instruments administered to the students at the sophomore and senior years, and the final section defines the variables used in the analysis.

General Description of High School and Beyond (HS&B)

HS&B is a longitudinal survey of the high school sophomore and senior classes of 1980 that is supported by the Center for Education Statistics (CES). HS&B is based on a stratified national probability sample of public and private high schools in the United States. Over 30,000 sophomores and 28,000 seniors enrolled in 1,015 high schools participated in the base year of the study, representing the 3.8 million sophomores and 3.0 million seniors in more than 21,000 schools in the United States during Spring 1980. Questionnaires were administered to students, administrators, teachers, and parents to obtain a broad range of information concerning student achievement, background, and educational experiences. Students were also administered a range of achievement tests covering vocabulary, reading, mathematics, sciences, writing, and civics.

A first follow-up survey conducted in Spring 1982 provided data on the sophomore and senior cohorts to update information on attitudes, achievement, current activities (primarily educational and occupational), and changes in the status of background information. A subsample of the students was readministered the earlier achievement tests to gain an understanding of academic growth over the two year duration. In addition, complete transcript data for all four years of high school were collected on a separate subsample of the base year sample. Because of the scope of the information obtained, the longitudinal nature of the data base, and the relationship of HS&B to the prior National Longitudinal Study of the High School Class of 1972 (Burkheimer & Novak, 1977; Fetters, 1974; 1975; CES, 1976; Peng, Bailey, & Ecklund, 1977), HS&B provides the most exceptional source of information on high school students available today.

In addition to these merits, the HS&B data base is of particular importance for answering policy and research questions concerning the educational and occupational attainments of Hispanics. Public schools enrolling a high percentage of (non-Cuban) Hispanics and a high percentage of Cubans were over sampled, yielding a sample of about 5,120 Hispanics. The over sampling was undertaken with financial support from the U.S. Office of Bilingual Education and Minority Languages Affairs. HS&B respondents answered the most extensive set of home language background and individual language questions asked since the 1976 Survey of Income and Education (CES, 1978a; 1978b; 1978c), the Children's English and Services Study (O'Malley, 1981; 1982), the 1979 Current Population Survey (Census, 1982), and the 1980 Census (Waggoner, 1983). They also answered questions on educational experiences that were tailored for students with limited proficiency in English. When combined with data already available on HS&B respondents, the language background, use, and proficiency data produce the opportunity for extensive analysis of academic achievement and academic growth for Hispanics.

Source of Data

All data in these tabulations and computations were derived from 1980 sophomore responses to HS&B questionnaires in the base year and the first follow-up (1982), from test scores in 1980 and 1982, and from HS&B transcript files. Documentation for the test score and transcript data is in

- High School and Beyond 1980 Sophomore Cohort First Follow-up (1982) Data File Users Manual (CES 83-214), and
- High School and Beyond Transcript Survey (1982) Data File Users Manual (CES 84-205).

Documentation on students within the complete HS&B data file who reported having a primary language other than English, a non English language background, or who currently spoke a language other than English is in

- High School and Beyond Language File Code Book (unnumbered document available from CES).

Sample Selection. The subsample for all statistics presented in this report includes all sophomores in the HS&B base year, follow-up survey, and transcript file. The transcript file consisted of a subsample from the base year for whom complete high school transcript data were obtained. The following groups were excluded from the analysis:

1. Nonparticipants in the base year and/or the first follow-up surveys;
2. Hispanic students with conflicting ethnic identification between the base year and follow-up year surveys (i.e., who claimed Mexican ethnicity on the base year and Puerto Rican on the follow-up survey -- the number of such cases was 172); and
3. All Asian and Pacific Islanders, and all American Indians or Alaskan Natives.

The rationale for excluding Hispanics with conflicting ethnic identification was that no valid indication could be derived for their true ethnic membership. Asians and Pacific Islanders and American Indians and

Alaskan Natives were excluded because the focus of this study was on Hispanics relative to non-Hispanic blacks and whites. Due to these exclusions, the number of cases (unweighted) in this study is less than the total number of HS&B respondents. Dropouts and transfer students were included in this analysis. Dropouts were included to provide a broader population on which to analyze academic growth. The final unweighted distribution of students by race/ethnicity (Hispanics,non-Hispanic blacks, and non-Hispanic whites) and dropout status is

	Total	In School	Dropout	Dropout Status Missing
Hispanic	2362	2001	330	31
Black	2471	2125	324	22
White	10014	8729	1179	109
TOTAL	14847	12855	1833	159

In analyses concerning test performance, students were also excluded if they failed to have scores on both the base year and the follow-up year tests.

Definition of Hispanic. Students were classified as Hispanic when the following conditions were met:

1. Hispanic ethnicity on both the base year and the first follow-up were reported;
2. Hispanic ethnicity in the base year was reported but data were missing in the first follow-up;
3. Hispanic ethnicity was missing for the base year but was reported in the first follow-up;
4. Non-Hispanic ethnicity was reported in the base year but Hispanic ethnicity was reported in the first follow-up.

Hispanic students were classified into four subgroups on the basis of their responses to the base year and first follow-up surveys. The categories were Mexican, Cuban, Puerto Rican, and Other Hispanic. Students who reported their ethnicity as Hispanic on the base year but specifically denied Hispanic ethnicity in the first follow-up were assigned to the racial group (non-Hispanic black, non-Hispanic white) to which they had responded (there were 232 such cases). These cases were treated differently than students in category Number 4 above because the follow-up question was reformatted to provide more accurate information about ethnic identity than was obtained in the base year. The final unweighted numbers of Hispanics by ethnicity and dropout status was

	Total	In School	Dropout	Dropout Status Missing
Mexican American	1426	1184	225	17
Cuban	252	221	26	5
Puerto Rican	336	280	51	5
Other Hispanic	348	317	28	3
TOTAL	2362	2002	330	30

Achievement Measures

The achievement measures used in this study were developed by Educational Testing Service (ETS) for investigating trends in achievement between the 1972 National Longitudinal Study and the 1980 HS&B senior year data. In addition, the measures designed for sophomores were intended to permit the computation of changes in test scores from the 10th grade to the 12th grade. The achievement measures in math, science, and writing contained specific assessment items that are included in typical high school curricula. As noted by Heyns and Hilton (1982), the change scores could "be used in studies of academic growth in secondary schools and as tools for evaluating the effects of educational programs" (p. 91). However, as Heyns and Hilton go on to note, the appropriateness of the tests for reflecting changes over time may be limited for test items that assess general achievement rather than achievement in specific courses.

General descriptions of the instruments and their psychometric properties are presented in various reports by ETS (Heyns & Hilton, 1982; Rock, Ekstrom, Goertz, Hilton, & Pollack, 1984; Rock, Hilton, Pollack, Ekstrom, and Goertz, 1985). The following areas of achievement were analyzed in the present study:

- Vocabulary -- a 15-item instrument used to assess vocabulary with items consisting of a single word followed by five possible synonyms. The student is asked to select the one choice which most nearly resembles the stem. (9 minutes)
- Reading -- a relatively unspeeded measure of reading comprehension in which five reading passages are given along with 20 five-option multiple choice items concerning what is stated or implied in each passage. (15 minutes)

- Mathematics -- a test of 25 items in which the test taker indicates which of two quantities is greater, or equal, or that the data given is insufficient to make a decision. The items were selected not to require specific algebraic, geometric or trigonometric skills. (15 minutes)

- Science -- a 20-item, 5-option multiple choice test with items reflecting biology, chemistry, physics, earth science, and scientific method. (10 minutes)

- Writing -- a 17-item, multiple choice test of writing ability and basic grammar. (10 minutes)

Rock et al. (1985) analyzed the reliabilities of these test for subgroups identified by race/ethnicity (black, white, Hispanic) and sex by coefficient Alpha. Coefficient Alpha is an estimate of internal consistency among item responses. It reflects homogeniety of item content and measurement precision. The range of reliabilities (coefficient alpha) found by Rock et al. for the above tests was .74 to .87 for all 1980 sophomores and .76 to .90 for all 1982 seniors. The range of reliabilities for Hispanics, blacks and non-Hispanic whites vary somewhat from the coefficients for the total population. Rock et al. note that the test scores for blacks and Hispanics were slightly less reliable than corresponding scores for non-Hispanic whites and that since the standard errors of measurement were only marginally different for Hispanics, blacks, and non-Hispanic whites, differences in reliability may be due to population differences in test score variability. Test scores for Hispanics, blacks, and non-Hispanic whites have similar precision. However, Rock et al. caution against assessing change with a test of civics that was administered as part of the assessment battery due to low reliabilities. Heyns and Hilton (1982) raise questions about the applicability of the tests for measuring change between the sophomore and enior year because the content was designed to be sensitive to school curriculum only for writing, science, and mathematics. Tests specifically designed to emphasize course content were the writing and science tests, while only an 8-item subtest of the full mathematics test was designed to assess course content. Because the subtest is brief, and subtest reliabilities are low, Rock et al. suggest using the full mathematics test.

All tests were scored using Item Response Theory (IRT). IRT (Rock et al., 1985) describes the probability of answering an item correctly as a mathematical function of ability level. The mathematical function has an ability parameter for each student and three parameters characterizing each item: difficulty level, discriminating power, and the probability of a low ability individual guessing the correct answer. The total score is a summation of scoring weights reflecting the interaction of the item parameters with the person's ability level. According to the model, a low ability individual will receive little credit on a difficult item because the correct answer was probably obtained through guessing. An IRT score is approximately interpretable in terms of the original raw score distribution except that the score will not reflect the actual number right but will tend to reveal the "number right true score."

Variables in the Analysis

There were three types of variables used in the analysis: background variables, language variables, and school variables. Each of these types of variables is described in the following sections.

Background Variables. The four principal background variables used in the analysis were sex, socioeconomic status (SES), length of residence, and educational aspirations. The background variables obtained from the HS&B base year survey were:

- Sex -- coded male or female as indicated by the student's response or imputed for missing data from name or other information.
- SES -- a constructed variable based on father's occupation, father's education, mother's education, family income, and a set of items that ask whether the student's family receives a daily newspaper, owns an encyclopedia or other reference books, a typewriter, an electric dishwasher, two or more cars or trucks, more than 50 books, or a pocket calculator; and whether the student has his or her own room. Each item is standardized within grade level to a mean of zero and a standard deviation of one. The mean of the nonmissing items for each person is used to compute the composite socioeconomic measure. Data were taken from the base year where possible but were selected from the first follow-up year if base year data were missing.
- Length of Residence -- the number of years the student has spent in the United States, coded as 1-5 years, 6-10 years, and 11 years or more.
- Educational Aspirations -- the lowest level of education the student would be satisfied with, coded as high school only, some college, college, college and beyond.

Language Variables. The analyses presented here made use of a number of variables reflecting the home language, individual language use, or the language proficiency of the student. Both Hispanics and non-Hispanics were included in the analysis. The language variables obtained from the HS&B base year survey were as follows:

- Home Language -- coded in three categories, English monolingual, English dominant, and non-English dominant. This classification was based on responses to items concerning the language people in the person's home usually speak, and any other language people speak in the home. Respondents were classified as

- English monolingual if the response to both items (usual and other language) was English, or if the response to usual language was English, and the response to the other language was missing.

- English dominant if the respondent indicated English as the usual language and any non-English language(s) as the other language.

- Non-English dominant if the respondent indicated a non-English language as the usual home language and had no other response, or if the respondent indicated a non-English language as the usual home language and had a multiple response to the other language.

o Individual Language Use -- coded English monolingual, English dominant bilingual, or non-English dominant bilingual. The classification was based on items indicating language used by the respondent at home and outside the home. The home language items were language the respondent speaks to mother, language mother speaks to respondent, language the respondent speaks to father, and language father speaks to respondent. The outside language items were language the respondent speaks to best friends, to other students, in stores, and at work. A response to any of these items other than "never" uses the language in that context was taken as an affirmative use of the language. The classification was designated as follows:

- English monolingual if the student never used a non-English language at home or outside the home,

- English dominant bilingual if the student used a non-English language at home but never used it outside the home (a small number of students reporting to use the non English language outside the home but never at home were excluded),

- Non-English dominant bilingual if the student used a non-English language both at home and outside the home.

- Language Proficiency -- coded separately for English and for Spanish, and coded separately for literacy (reading, writing) and oral proficiency (speaking, understanding) within each language. Literacy is coded continuously as the average of separate 1-4 ratings (very well, pretty well, not very well, not at all) for reading and writing. Oral proficiency is coded the same way and is the average of ratings for speaking and understanding.

Course Taking. There were two measures of course taking used in the analysis: high school program and Carnegie units. The high school program (general, academic, or vocational) was determined from students in the first follow-up survey. Carnegie units were derived by CES from analyses of courses appearing in high school transcripts. A Carnegie unit is the equivalent of one year of school work. A Carnegie unit generally requires 36 weeks at a minimum of 200 minutes per week for a regular class and 275 minutes per week for a lab class.

Dropout Status. Dropout information was obtained from data in the first followup. The dropouts included only those students who dropped out after data were collected in the base year.

Variables Not Included

A number of variables were considered for inclusion in the analysis but for a variety of reasons were rejected. One major variable that was omitted in the analysis was exposure to instructional programs designed for non-English language background persons. Respondents from non-English language backgrounds or individuals who used a language other than English were requested to indicate if they had received instruction designed specifically for non-English language background persons. The options provided for response were as follows:

- An English course designed for students from non-English language backgrounds,
- Reading and writing in that language (i.e., the non-English language), or
- Other subjects, such as math or science, taught, at least in part, in that language (the non-English language).

This study had intended to analyze these data to determine the extent to which students were exposed to any one of these course areas while in grades 10-12. Data from these questions were found to be inconsistent with results from other surveys and therefore were not used in this study. The weighted percentage of Hispanic students reporting to have received English language instruction designed specifically for students from non-English language backgrounds was only 1.7 percent. In contrast, the weighted percentage of students reporting to have received instruction in other subjects through the non-English language was 21.3 percent. This suggests that the percentage of Hispanic students receiving instruction through a non-English language in content areas was over 10 times the percentage receiving English as a second language (ESL). From what is known of the proportion of ESL to non-English content area instruction in other studies (e.g., O'Malley, 1982; 1983), the proportion of students receiving ESL should be far in excess of the proportion receiving non-English language content instruction in grades 10-12. The validity of responses to these HS&B items was examined in terms of their inconsistency with other items in the questionnaire (Fernandez, 1983), but the concurrent validity with measures of the actual instructional approaches used in the classrooms does not appear to have been analyzed. Because of the inconsistency of these responses with data from other studies, the items were not used in the present analysis.

APPENDIX B

SUPPLEMENTARY DESCRIPTIVE TABLES

TABLE

1A Percent of Enrollment in High School Program in the Senior Year by Race/Ethnicity and Sex

1B Percent of Enrollment in High School Program in the Senior Year by Race/Ethnicity and SES

1C Percent of Enrollment in High School Program in the Senior Year by Race/Ethnicity and Home Language

1D Percent of Enrollment in High School Program in the Senior Year by Race/Ethnicity and English Proficiency

1E Percent of Enrollment in High School Program in the Senior Year by Race/Ethnicity and Spanish Proficiency

1F Percent of Enrollment in High School Program in the Senior Year by Race/Ethnicity and Country of Origin

1G Percent of Enrollment in High School Program in the Senior Year by Race/Ethnicity and Length of Residence

1I Percent of Enrollment in High School Program in the Senior Year by Race/Ethnicity and Educational Aspiration

2A Mean Carnegie Units in the New Basics by Race/Ethnicity and Sex

2B Mean Carnegie Units in the New Basics by Race/Ethnicity and SES

2C Mean Carnegie Units in the New Basics by Race/Ethnicity and Home Language

2D Mean Carnegie Units in the New Basics by Race/Ethnicity and English Proficiency

2E Mean Carnegie Units in the New Basics by Race/Ethnicity and Spanish Proficiency

2F Mean Carnegie Units in the New Basics by Race/Ethnicity and Country of Origin

2G Mean Carnegie Units in the New Basics by Race/Ethnicity and Length of Residence

2I Mean Carnegie Units in the New Basics by Race/Ethnicity and Educational Aspiration

3A Mean IRT Scores in Vocabulary by Academic Year, Race/Ethnicity and Sex

3B Mean IRT Scores in Vocabulary by Academic Year, Race/Ethnicity and SES

3C Mean IRT Scores in Vocabulary by Academic Year, Race/Ethnicity and Home Language

3D Mean IRT Scores in Vocabulary by Academic Year, Race/Ethnicity and English Proficiency

3E Mean IRT Scores in Vocabulary by Academic Year, Race/Ethnicity and Spanish

3F Mean IRT Scores in Vocabulary by Academic Year, Race/Ethnicity and Country of Origin

3G Mean IRT Scores in Vocabulary by Academic Year, Race/Ethnicity and Length of Residence

3H Mean IRT Scores in Vocabulary by Academic Year, Race/Ethnicity and Carnegie Units in the New Basics

3I Mean IRT Scores in Vocabulary by Academic Year, Race/Ethnicity and Educational Aspiration

4A Mean IRT Scores in Reading by Academic Year, Race/Ethnicity and Sex

4B Mean IRT Scores in Reading by Academic Year, Race/Ethnicity and SES

4C Mean IRT Scores in Reading by Academic Year, Race/Ethnicity and Home Language

4D Mean IRT Scores in Reading by Academic Year, Race/Ethnicity and English Proficiency

4E Mean IRT Scores in Reading by Academic Year, Race/Ethnicity and Spanish Proficiency

4F Mean IRT Scores in Reading by Academic Year, Race/Ethnicity and Country of Origin

4G Mean IRT Scores in Reading by Academic Year, Race/Ethnicity and Length of Residence

4H Mean IRT Scores in Reading by Academic Year, Race/Ethnicity and Carnegie Units the New Basics

4I Mean IRT Scores in Reading by Academic Year, Race/Ethnicity and Educational Aspiration

5A Mean IRT Scores in Math by Acacdemic Year, Race/Ethnicity and Sex

5B Mean IRT Scores in Math by Academic Year, Race/Ethnicity and SES

5C Mean IRT Scores in Math by Academic Year, Race/Ethnicity and Home Language

5D Mean IRT Scores in Math by Academic Year, Race/Ethnicity and English Proficiency

5E Mean IRT Scores in Math by Academic Year, Race/Ethnicity and Spanish Proficiency

5F Mean IRT Scores in Math by Academic Year, Race/Ethnicicty and Country of Origin

5G Mean IRT Scores in Math by Academic Year, Race/Ethnicity and Length of Business

5H Mean IRT Scores in Math by Academic Year, Race/Ethnicity and Carnegie Units in the New Basics

5I Mean IRT Scores in Math by Academic Year, Race/Ethnicity and Educational Aspiration

6A Mean IRT Scores in Science by Academic Year, Race/Ethnicity and Sec

6B Mean IRT Scores in Science by Academic Year, Race/Ethnicity and SES

6C Mean IRT Scores in Science by Academic Year, Race/Ethnicity and Home Language

6D Mean IRT Score in Sciencce by Academic Year, Race/Ethnicity and English Proficiency

6E Mean IRT Scores in Science by Academic Year, Race/Ethnicity and Spanish Proficiency

6F Mean IRT Scores in Science by Academic Year, Race/Ethnicity and Country of Origin

6G Mean IRT Scores in Science by Academic Year, Race/Ethnicity and Length of Business

6H Mean IRT Scores in Science by Academic Year, Race/Ethnicity and Carnegie Units in the New Basics

6I Mean IRT Scores in Science by Academic Year, Race/Ethnicity and Educational Aspiration

7A Mean IRT Scores in Writing by Academic Year, Race/Ethnicity and Sex

7B Mean IRT Scores in Writing by Academic Year, Race/Ethnicity and SES

7C Mean IRT Scores in Writing by Academic Year, Race/Ethnicity and Home Language

7D Mean IRT Scores in Writing by Academic Year, Race/Ethnicity and English Proficiency

7E Mean IRT Scores in Writing by Academic Year, Race/Ethnicity and Spanish Proficiency

7F Mean IRT Scores in Writing by Academic Year, Race/Ethnicity and Country of Origin

7G Mean IRT Scores in Writing by Academic Year, Race/Ethnicity and Length of Residence

7H Mean IRT Scores in Writing by Academic Year, Race/Ethnicity and Carnegie Units in the New Basics

7I Mean IRT Scores in Writing by Academic Year, Race/Ethnicity and Educational Aspiration

Table 1A

Percent of Enrollment in High School Program in the Senior Year by Race/Ethnicity and Sex

Sex	Race/ Ethnicity	n*	Total	High School Program General	Academic	Vocational
Total		12999	100.0	19.8	42.7	37.5
	Hispanic	2003	100.0	18.0	30.5	51.5
	Mexican	1199	100.0	21.5	25.5	53.0
	Cuban	222	100.0	17.4	53.2	29.4
	Puerto Rican	288	100.0	13.3	34.7	52.1
	Other Hispanic	295	100.0	12.9	33.7	53.3
	Black	2163	100.0	14.5	34.5	51.0
	White	8833	100.0	20.8	45.1	34.1
Male		6397	100.0	21.3	41.4	37.4
	Hispanic	969	100.0	17.6	29.6	52.8
	Mexican	576	100.0	20.2	24.5	55.3
	Cuban	98	100.0	19.0	40.0	41.0
	Puerto Rican	142	100.0	14.6	38.7	46.8
	Other Hispanic	152	100.0	13.7	32.1	54.2
	Black	1025	100.0	14.4	35.6	50.1
	White	4403	100.0	22.7	43.3	34.0
Female		6602	100.0	18.4	44.0	37.7
	Hispanic	1034	100.0	18.4	31.5	50.1
	Mexican	622	100.0	22.8	26.6	50.7
	Cuban	124	100.0	15.7	67.4	16.9
	Puerto Rican	146	100.0	11.6	29.3	59.1
	Other Hispanic	142	100.0	12.1	35.7	52.3
	Black	1138	100.0	14.6	33.6	51.8
	White	4430	100.0	19.0	46.8	34.2

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* The number of cases in each analysis varied according to the response rate on the variable analyzed.

Table 1B

Percent of Enrollment in High School Program in the Senior Year by Race/Ethnicity and SES

SES Quartile	Race/ Ethnicity	n*	Total	High School Program		
				General	Academic	Vocational
Lowest		3440	100.0	22.7	23.5	53.7
	Hispanic	1024	100.0	18.3	22.0	59.7
	Mexican	696	100.0	20.8	18.3	60.9
	Cuban	59	100.0	14.8	47.7	37.5
	Puerto Rican	178	100.0	14.4	38.7	47.0
	Other Hispanic	91	100.0	14.0	12.9	73.1
	Black	857	100.0	17.6	27.2	55.3
	White	1559	100.0	26.0	22.4	51.6
Second		3100	100.0	21.5	34.7	43.8
	Hispanic	421	100.0	16.1	30.4	53.5
	Mexican	241	100.0	21.8	28.0	50.2
	Cuban	54	100.0	23.7	41.8	34.5
	Puerto Rican	54	100.0	14.1	29.7	56.2
	Other Hispanic	72	100.0	5.5	32.4	62.0
	Black	540	100.0	12.9	37.0	50.1
	White	2140	100.0	23.3	34.6	42.1
Third		2958	100.0	19.8	45.5	34.6
	Hispanic	304	100.0	23.3	39.9	36.8
	Mexican	159	100.0	28.2	37.4	34.4
	Cuban	50	100.0	21.1	68.6	10.3
	Puerto Rican	32	100.0	16.1	22.3	61.6
	Other Hispanic	64	100.0	18.3	46.7	35.0
	Black	428	100.0	14.1	40.0	45.9
	White	2226	100.0	20.3	46.4	33.3
Highest		3369	100.0	15.8	65.8	18.4
	Hispanic	235	100.0	13.7	55.9	30.5
	Mexican	90	100.0	14.4	48.6	37.1
	Cuban	58	100.0	14.9	58.0	27.1
	Puerto Rican	21	a	a	a	a
	Other Hispanic	66	100.0	16.1	66.7	17.2
	Black	274	100.0	7.9	60.1	32.0
	White	2861	100.0	16.3	66.4	17.3

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a - Sample size too small for reliable estimation.

* The number of cases in each analysis varied according to the response rate on the variable analyzed.

Table 1C

Percent of Enrollment in High School Program in the Senior Year by Race/Ethnicity and Home Language

Home Language	Race/ Ethnicity	n*	Total	High School Program		
				General	Academic	Vocational
Non-English Dominant		1033	100.0	19.7	34.9	45.4
	Hispanic	881	100.0	19.3	33.9	46.8
	Mexican	494	100.0	20.1	24.4	55.5
	Cuban	162	100.0	22.5	56.2	21.3
	Puerto Rican	153	100.0	18.0	40.4	41.6
	Other Hispanic	73	100.0	14.0	47.5	38.5
	Black	11	100.0	a	a	a
	White	141	100.0	20.8	37.1	42.1
English Dominant		1325	100.0	19.1	46.5	34.3
	Hispanic	557	100.0	21.9	38.1	40.0
	Mexican	427	100.0	24.6	34.8	40.7
	Cuban	26	100.0	a	a	a
	Puerto Rican	153	100.0	17.3	28.9	53.9
	Other Hispanic	61	100.0	13.0	54.8	32.3
	Black	69	100.0	10.1	45.8	44.1
	White	699	100.0	18.9	48.6	32.4
Monolingual English		10601	100.0	19.9	42.6	37.6
	Hispanic	551	100.0	14.8	24.7	60.6
	Mexican	268	100.0	19.5	19.4	61.1
	Cuban	34	100.0	11.1	39.8	49.1
	Puerto Rican	92	100.0	6.7	30.0	63.3
	Other Hispanic	158	100.0	12.5	27.3	60.2
	Black	2080	100.0	14.6	34.2	51.2
	White	7970	100.0	21.0	44.8	34.2

a = Sample size too small for reliable estimation.

* The number of cases in each analysis varied according to the response rate on the variable analyzed.

Table 1D

Percent of Enrollment in High School Program in the Senior Year by Race/Ethnicity and English Proficiency

Speak/ Understand English	Race/ Ethnicity	n*	Total	High School Program		
				General	Academic	Vocational
NOT AT ALL		3	100.0	a	a	a
	Hispanic	1	100.0	a	a	a
	Mexican	1	100.0	a	a	a
	Cuban	0	100.0	.0	.0	.0
	Puerto Rican	0	100.0	.0	.0	.0
	Other Hispanic	0	100.0	.0	.0	.0
	Black	0	100.0	.0	.0	.0
	White	2	100.0	a	a	a
NOT VERY WELL		26	100.0	11.0	20.8	68.3
	Hispanic	20	100.0	a	a	a
	Mexican	14	100.0	a	a	a
	Cuban	0	100.0	.0	.0	.0
	Puerto Rican	4	100.0	a	a	a
	Other Hispanic	2	100.0	a	a	a
	Black	2	100.0	a	a	a
	White	4	100.0	a	a	a
PRETTY WELL		294	100.0	17.3	28.7	54.0
	Hispanic	235	100.0	15.0	26.4	58.5
	Mexican	167	100.0	16.3	16.5	67.2
	Cuban	24	100.0	a	a	a
	Puerto Rican	26	100.0	a	a	a
	Other Hispanic	18	100.0	a	a	a
	Black	8	100.0	a	a	a
	White	51	100.0	18.7	33.4	47.8
VERY WELL		2167	100.0	18.1	46.6	35.3
	Hispanic	1230	100.0	21.8	37.6	40.6
	Mexican	767	100.0	24.0	32.1	44.0
	Cuban	168	100.0	19.6	60.9	19.6
	Puerto Rican	169	100.0	19.3	35.3	45.4
	Other Hispanic	126	100.0	15.9	51.5	32.6
	Black	90	100.0	8.7	44.0	47.3
	White	847	100.0	17.0	50.8	32.3

a = Sample size too small for reliable estimation.

* The number of cases in each analysis varied according to the response rate on the variable analyzed.

Table 1E

Percent of Enrollment in High School Program in the Senior Year by Race/Ethnicity and Spanish Proficiency

Speak/ Understand Spanish	Race/ Ethnicity	n*	Total	High School Program		
				General	Academic	Vocational
NOT AT ALL		108	100.0	22.7	35.0	42.3
	Hispanic	14	100.0	a	a	a
	Mexican	10	100.0	a	a	a
	Cuban	0	.0	0	0	0
	Puerto Rican	2	100.0	a	a	a
	Other Hispanic	2	100.0	a	a	a
	Black	9	100.0	a	a	a
	White	85	100.0	20.5	37.2	42.3
NOT VERY WELL		444	100.0	20.4	47.5	32.1
	Hispanic	135	100.0	19.1	33.0	47.9
	Mexican	99	100.0	17.1	35.5	47.4
	Cuban	1	100.0	a	a	a
	Puerto Rican	13	100.0	a	a	a
	Other Hispanic	23	100.0	a	a	a
	Black	22	100.0	a	a	a
	White	287	100.0	20.6	51.2	28.1
PRETTY WELL		1011	100.0	15.0	50.9	34.1
	Hispanic	606	100.0	21.3	32.4	46.3
	Mexican	444	100.0	23.4	26.8	49.8
	Cuban	55	100.0	28.8	54.5	16.7
	Puerto Rican	66	100.0	19.5	40.5	40.0
	Other Hispanic	41	100.0	5.3	52.6	42.1
	Black	49	100.0	9.7	59.1	31.2
	White	356	100.0	12.0	60.0	27.9
VERY WELL		943	100.0	18.9	36.4	44.7
	Hispanic	773	100.0	18.8	39.2	42.0
	Mexican	396	100.0	20.6	29.4	50.0
	Cuban	136	100.0	17.4	60.2	22.4
	Puerto Rican	120	100.0	16.7	442.3	41.0
	Other Hispanic	81	100.0	15.9	54.7	29.4
	Black	22	100.0	a	a	a
	White	188	100.0	19.8	31.6	48.6

a = Sample size too small for reliable estimation.

* The number of cases in each analysis varied according to the response rate on the variable analyzed.

Table 1F

Percent of Enrollment in High School Program by Senior Year by Race/Ethnicity and Country of Origin

Country of Origin	Race/ Ethnicity	n*	Total	General	Academic	Vocational
USA		11614	100.0	21.1	42.6	36.4
	Hispanic	1490	100.0	21.3	28.5	50.3
	Mexican	993	100.0	23.9	25.4	50.8
	Cuban	105	100.0	22.7	53.6	23.7
	Puerto Rican	196	100.0	15.9	31.7	52.5
	Other Hispanic	196	100.0	16.8	31.6	51.6
	Black	1904	100.0	16.0	34.4	49.6
	White	8220	100.0	21.9	44.8	33.4
OUTSIDE USA		622	100.0	15.8	43.9	40.3
	Hispanic	340	100.0	17.5	44.7	37.7
	Mexican	124	100.0	18.7	33.2	48.1
	Cuban	99	100.0	19.1	55.6	25.3
	Puerto Rican	55	100.0	20.2	41.2	38.6
	Other Hispanic	61	100.0	11.8	59.1	29.1
	Black	88	100.0	3.2	37.5	59.3
	White	194	100.0	17.5	44.8	37.7

* The number of cases in each analysis varied according to the response rate on the variable analyzed.

Table 1G

Percent of Enrollment in High School Program in the Senior Year by Race/Ethnicity and Length of Residence

Length of Residence	Race/ Ethnicity	n*	Total	High School Program General	Academic	Vocational
1 to 5 Years		354	100.0	12.4	42.7	44.9
	Hispanic	184	100.0	11.3	43.2	45.5
	Mexican	75	100.0	9.7	30.7	59.5
	Cuban	36	100.0	11.0	49.6	39.4
	Puerto Rican	35	100.0	11.2	49.4	39.4
	Other Hispanic	38	100.0	15.0	58.7	26.4
	Black	67	100.0	5.2	30.8	64.0
	White	102	100.0	16.6	48.0	35.5
6 to 10 Years		404	100.0	18.2	40.5	41.4
	Hispanic	135	100.0	23.5	31.2	45.3
	Mexican	50	100.0	27.1	25.3	47.6
	Cuban	41	100.0	21.5	50.0	28.4
	Puerto Rican	a	100.0	a	a	a
	Other Hispanic	a	100.0	a	a	a
	Black	67	100.0	4.3	28.8	67.0
	White	202	100.0	19.7	45.3	35.0
11 or More		11492	100.0	21.1	42.7	36.3
	Hispanic	1514	100.0	21.6	29.5	48.9
	Mexican	993	100.0	24.5	25.9	49.6
	Cuban	130	100.0	22.4	54.3	23.3
	Puerto Rican	190	100.0	17.1	29.2	53.8
	Other Hispanic	201	100.0	16.3	34.7	49.0
	Black	1864	100.0	16.1	34.6	49.3
	White	8115	100.0	21.8	44.8	33.4

a - Sample size too small for reliable estimation.
* The number of cases in each analysis varied according to the response rate on the variable analyzed.

Table 11

Percent of Enrollment in High School Program in the Senior Year by Race/Ethnicity and Educational Aspiration

Post Sec Educ Plans	Race/ Ethnicity	n*	Total	High School Program General	Academic	Vocational
HS ONLY		2441	100.0	25.0	13.6	61.4
	Hispanic	446	100.0	15.2	13.6	71.2
	Mexican	310	100.0	17.1	10.8	72.2
	Cuban	16	100.0	a	a	a
	Puerto Rican	71	100.0	14.7	18.5	66.9
	Other Hispanic	49	100.0	11.7	15.8	72.5
	Black	338	100.0	14.5	18.8	66.7
	White	1657	100.0	27.9	12.8	59.4
SOME COLLEGE		2441	100.0	26.4	17.4	56.3
	Hispanic	403	100.0	20.9	15.4	63.8
	Mexican	262	100.0	24.4	15.7	59.8
	Cuban	32	100.0	4.9	35.2	59.9
	Puerto Rican	58	100.0	25.6	11.0	63.4
	Other Hispanic	51	100.0	11.1	11.8	77.1
	Black	424	100.0	20.8	18.9	60.4
	White	1614	100.0	28.0	17.3	54.7
COLLEGE		2278	100.0	22.0	41.0	37.1
	Hispanic	727	100.0	21.8	29.3	48.9
	Mexican	241	100.0	28.0	26.9	45.1
	Cuban	40	100.0	53.5	22.0	24.5
	Puerto Rican	61	100.0	4.4	40.5	55.1
	Other Hispanic	53	100.0	11.1	29.6	59.3
	Black	419	100.0	13.6	33.7	52.7
	White	1464	100.0	23.6	43.4	33.1
COLLEGE AND BEYOND		5725	100.0	13.0	71.3	15.7
	Hispanic	727	100.0	16.3	59.9	23.8
	Mexican	370	100.0	19.1	52.8	28.1
	Cuban	132	100.0	12.5	75.1	12.3
	Puerto Rican	90	100.0	10.2	61.5	28.3
	Other Hispanic	135	100.0	16.5	65.9	17.6
	Black	948	100.0	11.0	53.3	35.7
	White	4050	100.0	13.1	74.6	12.3

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a - Sample size too small for reliable estimation.

* The number of cases in each analysis varied according to the response rate on the variable analyzed.

Table 2A

Mean Carnegie Units in the New Basics by Race/Ethnicity and Sex

			Mean Carnegie Units in the New Basics High School Program					
Sex	Race/ Ethnicity	n*	Total Units	English	Math	Phys/ BioSci	Soc Sci	Comp Sci
Total		14689	9.8	3.4	2.3	1.7	2.4	.1
	Hispanic	2332	8.1	2.9	1.9	1.3	2.0	.1
	Mexican	1409	8.3	2.9	1.9	1.3	2.1	.1
	Cuban	247	8.7	3.0	2.2	1.4	2.0	.1
	Puerto Rican	332	7.0	2.6	1.7	1.0	1.7	.1
	Other Hispanic	344	8.5	3.0	2.0	1.3	2.2	.1
	Black	2449	8.8	3.1	2.1	1.3	2.2	.1
	White	9908	10.2	3.4	2.4	1.8	2.4	.1
Male		7297	9.8	3.3	2.4	1.7	2.3	.1
	Hispanic	1132	7.8	2.7	1.9	1.2	1.9	.1
	Mexican	684	8.1	2.8	1.9	1.3	2.0	.1
	Cuban	108	8.0	2.7	2.0	1.3	1.9	.1
	Puerto Rican	167	6.5	2.3	1.6	1.0	1.5	.1
	Other Hispanic	172	8.1	2.8	1.9	1.3	2.0	.1
	Black	1183	8.4	3.0	2.1	1.3	2.1	.1
	White	4982	10.2	3.4	2.5	1.8	2.4	.1
Female		7392	9.9	3.4	2.3	1.7	2.4	.1
	Hispanic	1200	8.6	3.1	2.0	1.3	2.2	.1
	Mexican	725	8.5	3.0	1.9	1.3	2.2	.0
	Cuban	138	9.4	3.3	2.4	1.5	2.0	.1
	Puerto Rican	164	7.8	3.0	1.8	1.1	1.9	.0
	Other Hispanic	172	9.1	3.4	2.0	1.3	2.3	.1
	Black	1266	9.1	3.3	2.1	1.4	2.2	.1
	White	4926	10.1	3.5	2.4	1.8	2.4	.1

a = Sample size too small for reliable estimation.

* The number of cases in each analysis varied according to the response rate on the variable analyzed.

Table 2B

Mean Carnegie Units in the New Basics by Race/Ethnicity and SES

			Mean Carnegie Units in the New Basics					
SES Quartile	Race/ Ethnicity	n*	Total Units	English	Math	Phys/ Bio Sci	Sci	Comp Sci
Lowest		2860	8.9	3.2	2.0	1.3	2.3	.1
	Hispanic	1186	8.3	3.0	1.9	1.3	2.2	.1
	Mexican	813	8.7	3.1	2.0	1.4	2.3	.0
	Cuban	68	8.9	3.3	2.2	1.3	2.0	.1
	Puerto Rican	197	7.9	2.9	1.8	1.1	2.0	.1
	Other Hispanic	108	7.0	2.7	1.5	1.0	1.7	.1
	Black	971	9.1	3.3	2.1	1.3	2.3	.1
	White	1889	8.9	3.3	1.9	1.3	2.3	.1
Second		3008	9.7	3.4	2.2	1.6	2.4	.1
	Hispanic	480	8.9	3.2	2.1	1.3	2.3	.1
	Mexican	273	8.7	3.2	2.0	1.3	2.3	.1
	Cuban	63	9.2	3.2	2.5	1.3	2.1	.2
	Puerto Rican	62	7.5	3.0	1.9	1.0	1.7	.0
	Other Hispanic	82	9.7	3.4	2.2	1.5	2.6	.1
	Black	597	9.5	3.3	2.3	1.5	2.3	.1
	White	2411	9.8	3.4	2.2	1.6	2.4	.1
Third		2902	10.4	3.5	2.5	1.8	2.5	.1
	Hispanic	334	9.4	3.3	2.3	1.5	2.3	.1
	Mexican	176	9.5	3.4	2.4	1.5	2.3	.0
	Cuban	51	10.1	3.5	2.6	1.7	2.3	.1
	Puerto Rican	34	8.5	3.4	2.0	1.3	1.8	.0
	Other Hispanic	74	9.3	3.2	2.1	1.4	2.5	.1
	Black	469	9.5	3.3	2.3	1.5	2.3	.1
	White	2433	10.5	3.6	2.5	1.9	2.5	.1
Highest		3304	11.5	3.7	2.9	2.3	2.5	.1
	Hispanic	257	10.2	3.4	2.5	1.8	2.4	.1
	Mexican	101	9.6	3.2	2.4	1.6	2.4	.1
	Cuban	61	9.4	3.0	2.4	1.8	2.2	.1
	Puerto Rican	22	a	a	a	a	a	a
	Other Hispanic	74	11.6	3.9	2.8	2.1	2.7	.1
	Black	295	10.1	3.5	2.5	1.7	2.3	.1
	White	3009	11.6	3.7	3.0	2.3	2.5	.1

a - Sample size too small for reliable estimation.

* The number of cases in each analysis varied according to the response rate on the variable analyzed.

Table 2C

Mean Carnegie Units in the
New Basics by Race/Ethnicity and Home Language

			Mean Carnegie Units in the New Basics					
Home Language	Race/ Ethnicity	n*	Total Units	English	Math	Phys/ Bio Sci	Soc Sci	Comp Sci
Non Engl Dominant		1153	9.1	3.1	2.2	1.5	2.2	.1
	Hispanic	980	9.0	3.1	2.1	1.4	2.2	.1
	Mexican	564	9.1	3.1	2.1	1.5	2.4	.0
	Cuban	174	9.2	3.3	2.4	1.4	2.0	.2
	Puerto Rican	164	8.0	3.0	1.8	1.2	1.9	.1
	Other Hispanic	78	10.2	3.3	2.5	1.7	2.4	.2
	Black	14	a	a	a	a	a	a
	White	159	9.6	3.2	2.3	1.8	2.3	.1
English Dominant		1409	10.6	3.5	2.6	1.9	2.5	.1
	Hispanic	596	9.6	3.2	2.3	1.6	2.4	.1
	Mexican	457	9.5	3.1	2.3	1.6	2.4	.1
	Cuban	27	a	a	a	a	a	a
	Puerto Rican	47	9.2	3.1	2.2	1.7	2.2	.1
	Other Hispanic	66	9.8	3.4	2.4	1.5	2.3	.1
	Black	78	9.7	3.4	2.4	1.8	2.2	.0
	White	735	10.9	3.6	2.7	2.0	2.5	.1
English Monoling		12083	9.8	3.3	2.3	1.7	2.3	.1
	Hispanic	740	7.2	2.6	1.7	1.1	1.8	.0
	Mexican	377	7.1	2.6	1.7	1.0	1.8	.0
	Cuban	45	7.1	2.4	1.6	1.0	1.9	.1
	Puerto Rican	120	6.0	2.3	1.5	.8	1.5	.0
	Other Hispanic	198	8.1	2.9	1.8	1.2	2.1	.0
	Black	2354	8.8	3.1	2.1	1.3	2.2	.1
	White	8988	10.1	3.4	2.4	1.8	2.4	.1

a = Sample size too small for reliable estimation.

* The number of cases in each analysis varied according to the response rate on the variable analyzed.

Table 2D

Mean Carnegie Units in the New Basics by Race/Ethnicity and English Proficiency

Speak Understand English	Race/ Ethnicity	n*	Mean Carnegie Units in the New Basics					
			Total Units	English	Math	Phys/ Bio Sci	Soc Sci	Comp Sci
NOT AT ALL		4	a	a	a	a	a	a
	Hispanic	2	a	a	a	a	a	a
	Mexican	2	a	a	a	a	a	a
	Cuban	0	.0	.0	.0	.0	.0	.0
	Puerto Rican	0	.0	.0	.0	.0	.0	.0
	Other Hispanic	0	.0	.0	.0	.0	.0	.0
	Black	0	.0	.0	.0	.0	.0	.0
	White	2	a	a	a	a	a	a
NOT VERY WELL		30	6.8	1.9	1.9	1.3	1.8	.0
	Hispanic	23	a	a	a	a	a	a
	Mexican	15	a	a	a	a	a	a
	Cuban	1	a	a	a	a	a	a
	Puerto Rican	5	a	a	a	a	a	a
	Other Hispanic	2	a	a	a	a	a	a
	Black	2	a	a	a	a	a	a
	White	5	a	a	a	a	a	a
PRETTY WELL		333	9.3	3.2	2.1	1.5	2.4	.1
	Hispanic	270	9.1	3.2	2.1	1.5	2.3	.1
	Mexican	197	9.2	3.2	2.1	1.5	2.5	.1
	Cuban	26	a	a	a	a	a	a
	Puerto Rican	27	a	a	a	a	a	a
	Other Hispanic	20	a	a	a	a	a	a
	Black	8	a	a	a	a	a	a
	White	56	9.4	3.3	2.1	1.6	2.5	.0
VERY WELL		2338	10.3	3.4	2.5	1.9	2.4	.1
	Hispanic	1335	9.3	3.2	2.2	1.6	2.3	.1
	Mexican	838	9.3	3.2	2.2	1.5	2.4	.1
	Cuban	178	9.6	3.3	2.6	1.7	2.0	.1
	Puerto Rican	185	8.5	3.0	2.0	1.4	2.0	.1
	Other Hispanic	134	10.0	3.4	2.5	1.6	2.4	.1
	Black	101	9.2	3.2	2.2	1.7	2.0	.1
	White	903	10.8	3.5	2.7	2.0	2.5	.1

a = Sample size too small for reliable estimation.
* The number of cases in each analysis varied according to the response rate on the variable analyzed.

Table 2E

Mean Carnegie Units in the New Basics by Race/Ethnicity ans Spanish Proficiency

Speak Understand Spanish	Race/ Ethnicity	n*	Total Units	Mean Carnegie Units in the New Basics				
				English	Math	Phys/ BioSci	Soc Sci	Comp Sci
NOT AT ALL		117	10.0	3.5	2.4	1.7	2.4	.6
	Hispanic	18	a	a	a	a	a	a
	Mexican	14	a	a	a	a	a	a
	Cuban	0	a	a	a	a	a	a
	Puerto Rican	2	a	a	a	a	a	a
	Other Hispanic	2	a	a	a	a	a	a
	Black	10	a	a	a	a	a	a
	White	90	10.1	3.5	2.4	1.7	2.4	.1
NOT VERY WELL		480	10.8	3.6	2.5	2.0	2.6	.1
	Hispanic	146	9.4	3.2	2.2	1.5	2.5	.2
	Mexican	106	9.7	3.2	2.2	1.5	2.5	.2
	Cuban	1	a	a	a	a	a	a
	Puerto Rican	15	a	a	a	a	a	a
	Other Hispanic	25	a	a	a	a	a	a
	Black	25	a	a	a	a	a	a
	White	309	11.1	3.8	2.6	2.1	2.6	.1
PRETTY WELL		1094	10.3	3.4	2.6	1.9	2.4	.1
	Hispanic	663	9.2	3.1	2.2	1.6	2.3	.1
	Mexican	492	9.3	3.1	2.2	1.6	2.4	.1
	Cuban	57	10.4	3.6	2.8	1.8	2.0	.2
	Puerto Rican	72	8.6	3.1	2.1	1.3	2.0	.1
	Other Hispanic	42	9.3	3.1	2.3	1.6	2.2	.1
	Black	54	9.9	3.4	2.5	1.7	2.2	.1
	White	376	10.9	3.5	2.8	2.1	2.5	.1
VERY WELL		1030	9.5	3.2	2.3	1.6	2.3	.1
	Hispanic	806	9.1	3.2	2.2	1.4	2.3	.1
	Mexican	442	9.0	3.2	2.1	1.4	2.4	.0
	Cuban	147	9.1	3.2	2.4	1.5	1.9	.1
	Puerto Rican	130	8.2	2.9	1.9	1.4	1.9	.1
	Other Hispanic	87	10.7	3.6	2.7	1.8	2.5	.2
	Black	23	a	a	a	1.9	a	a
	White	202	10.0	3.2	2.5	1.9	2.4	.1

a = Sample size too small for reliable estimation.
* The number of cases in each analysis varied according to the response rate on the variable analyzed.

Table 2F

Mean Carnegie Units in the New Basics by Race/Ethnicity and Country of Origin

Country of Origin	Race/ Ethnicity	n*	Mean Carnegie Units in the New Basics					
			Total Units	English	Math	Phys/ BioSci	Soc Sci	Comp Sci
USA		12753	10.2	3.5	2.4	1.8	2.4	.1
	Hispanic	1642	9.1	3.2	2.1	1.4	2.3	.1
	Mexican	1111	9.0	3.1	2.1	1.4	2.3	.1
	Cuban	111	10.2	3.5	2.5	1.7	2.4	.1
	Puerto Rican	210	8.3	3.1	2.0	1.2	2.0	.1
	Other Hispanic	210	9.6	3.5	2.1	1.5	2.4	.1
	Black	2085	9.4	3.4	2.2	1.5	2.3	.1
	White	9027	10.3	3.5	2.5	1.8	2.5	.1
OUTSIDE USA		692	9.3	3.1	2.3	1.6	2.2	.1
	Hispanic	384	8.8	2.9	2.3	1.4	2.1	.1
	Mexican	143	8.5	2.9	2.2	1.2	2.2	.1
	Cuban	108	9.0	3.2	2.4	1.4	1.9	.2
	Puerto Rican	63	8.1	2.7	1.9	1.5	1.8	.1
	Other Hispanic	69	9.6	3.0	2.6	1.5	2.3	.2
	Black	98	8.5	2.8	2.1	1.4	2.0	.1
	White	210	9.7	3.2	2.4	1.8	2.3	.1

* The number of cases in each analysis varied according to the response rate on the variable analyzed.

Table 2G

Mean Carnegie Units in the New Basics by Race/Ethnicity and Length of Residence

			Mean Carnegie Units in the New Basics High School Program					
Length of Residence	Race/ Ethnicity	n*	Total Units	English	Math	Phys/ BioSci	Soc Sci	Comp Sci
1 to 5 Years		403	9.4	3.1	2.4	1.6	2.3	.1
	Hispanic	209	8.2	2.8	2.1	1.3	2.0	.1
	Mexican	87	8.2	2.8	2.1	1.1	2.1	.1
	Cuban	43	6.9	2.5	1.8	1.1	1.4	.1
	Puerto Rican	37	7.6	2.5	1.9	1.2	2.0	.2
	Other Hispanic	42	9.8	3.1	2.5	1.6	2.4	.2
	Black	73	8.9	3.1	2.2	1.2	2.3	.1
	White	120	10.5	3.3	2.6	1.9	2.6	.1
6 to 10 Years		441	9.2	3.2	2.3	1.6	2.1	.1
	Hispanic	145	8.5	3.0	2.2	1.3	2.0	.1
	Mexican	54	8.7	3.0	2.4	1.3	2.1	.0
	Cuban	43	9.4	3.4	2.5	1.5	1.9	.1
	Puerto Rican	26	a	a	a	a	a	a
	Other Hispanic	22	a	a	a	a	a	a
	Black	81	7.6	2.8	1.7	1.0	1.8	.1
	White	215	9.8	3.3	2.4	1.8	2.3	.1
11 or More		12615	10.2	3.5	2.4	1.8	2.4	.1
	Hispanic	1674	9.2	3.2	2.1	1.5	2.3	.1
	Mexican	1115	9.0	3.1	2.1	1.5	2.3	.1
	Cuban	136	10.5	3.6	2.6	1.8	2.5	.1
	Puerto Rican	210	8.5	3.1	2.0	1.3	2.0	.1
	Other Hispanic	214	9.6	3.5	2.2	1.5	2.4	.1
	Black	2035	9.4	3.4	2.2	1.5	2.3	.1
	White	8906	10.3	3.5	2.5	1.8	2.4	.1

a = Sample size too small for reliable estimation.
* The number of cases in each analysis varied according to the response rate on the variable analyzed.

Table 21

Mean Carnegie Units in the New Basics by Race/Ethnicity and Educational Aspiration

Post Sec Educ Plans	Race/ Ethnicity	n*	Total Units	Mean Carnegie Units in the New Basics				
				English	Math	Phys/ Bio Sci	Soc Sci	Comp Sci
HS ONLY		3219	7.7	2.9	1.7	1.1	2.0	.0
	Hispanic	576	6.5	2.4	1.5	.9	1.7	.0
	Mexican	414	6.8	2.4	1.6	1.1	1.7	.0
	Cuban	17	a	a	a	a	a	a
	Puerto Rican	85	5.3	2.0	1.3	.5	1.4	.0
	Other Hispanic	60	6.7	2.6	1.4	.8	1.8	.0
	Black	437	7.1	2.7	1.7	.9	1.9	.0
	White	2207	7.9	3.0	1.7	1.1	2.1	.0
SOME COLLEGE		2759	8.8	3.2	1.9	1.3	2.4	.1
	Hispanic	463	8.3	3.1	1.8	1.2	2.2	.1
	Mexican	300	8.5	3.1	1.8	1.2	2.4	.1
	Cuban	38	8.4	3.0	2.0	1.3	1.9	.1
	Puerto Rican	67	6.6	2.6	1.5	1.1	1.4	.1
	Other Hispanic	58	8.9	3.4	1.8	1.2	2.4	.0
	Black	484	8.0	3.0	1.8	1.1	2.1	.1
	White	1812	9.1	3.2	1.9	1.4	2.4	.1
COLLEGE		2492	10.0	3.5	2.3	1.6	2.5	.1
	Hispanic	445	8.8	3.1	2.0	1.3	2.3	.1
	Mexican	262	9.3	3.3	2.1	1.4	2.4	.1
	Cuban	48	7.5	2.8	1.8	.9	1.9	.2
	Puerto Rican	69	8.2	3.2	1.9	1.1	2.0	.1
	Other Hispanic	65	8.6	2.9	1.9	1.3	2.4	.1
	Black	460	9.0	3.3	2.1	1.3	2.3	.1
	White	1587	10.3	3.6	2.4	1.7	2.5	.1
COLLEGE AND BEYOND		5988	11.9	3.7	3.0	2.4	2.4	.1
	Hispanic	781	10.4	3.4	2.7	1.9	2.4	.1
	Mexican	398	10.5	3.4	2.7	1.9	2.5	.1
	Cuban	138	10.1	3.3	2.7	1.8	2.2	.1
	Puerto Rican	95	9.5	3.3	2.3	1.6	2.2	.1
	Other Hispanic	150	11.0	3.6	2.8	2.0	2.4	.2
	Black	1007	10.7	3.6	2.7	1.8	2.5	.1
	White	4201	12.1	3.8	3.1	2.5	2.6	.1

a - Sample size too small for reliable estimation.

* The number of cases in each analysis varied according to the response rate on the variable analyzed.

Table 3A

Mean IRT Scores in Vocabulary by Academic Year, Race/Ethnicity and Sex

Sex	Race/ Ethnicity	n*	Sophomore Mean	Sophomore SD**	Senior Mean	Senior SD	Change	Effect Size#
Total		10900	9.2	5.0	11.4	5.3	2.2	.4
	Hispanic	1448	6.4	4.5	8.2	5.4	1.7	.4
	Mexican	884	6.1	4.3	7.6	5.3	1.6	.4
	Cuban	171	8.6	5.4	10.3	5.7	1.7	.3
	Puerto Rican	197	5.8	4.4	7.6	5.6	1.8	.4
	Other Hispanic	196	7.1	4.4	9.2	5.1	2.0	.5
	Black	1577	5.4	4.3	7.3	4.9	2.0	.5
	White	7875	9.9	4.8	12.1	5.0	2.2	.5
Male		5323	9.4	4.9	11.5	5.2	2.1	.4
	Hispanic	677	6.4	4.5	8.2	5.4	1.8	.4
	Mexican	417	6.2	4.3	7.9	5.1	1.6	.4
	Cuban	66	10.4	5.9	11.3	6.1	1.0	.2
	Puerto Rican	95	6.3	4.6	8.5	6.0	2.2	.5
	Other Hispanic	100	6.1	4.2	8.2	5.1	2.1	.5
	Black	775	5.8	4.3	7.7	4.9	1.9	.4
	White	3871	10.1	4.7	12.2	5.0	2.1	.4
Female		5578	9.1	5.0	11.3	5.3	2.2	.4
	Hispanic	771	6.4	4.4	8.1	5.4	1.6	.4
	Mexican	468	5.9	4.3	7.4	5.4	1.5	.4
	Cuban	105	7.4	4.6	9.6	5.2	2.2	.5
	Puerto Rican	102	5.2	4.0	6.6	5.0	1.4	.3
	Other Hispanic	96	8.4	4.3	10.3	4.9	1.9	.4
	Black	802	4.9	4.2	7.0	4.9	2.1	.5
	White	4004	9.8	4.8	12.1	5.0	2.3	.5

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* The number of cases in each analysis varied according to the response rate on the variable analyzed.

**SD = Standard Deviation.

Note#: Effect size is computed with the following general formula $(\bar{X}_1 - \bar{X}_2)/SD_1$ where $\bar{X}_1$ and SD_1, refer to sophomore year mean test score and standard deviation and $\bar{X}_2$ refer to senior year mean test score.

Table 3B

Mean IRT Scores in Vocabulary by Academic Year, Race/Ethnicity, and SES

SES Quartile	Race/ Ethnicity	n*	Sophomore		Senior		Change	Effect Size#
			Mean	SD**	Mean	SD		
Lowest		2732	6.6	4.4	8.5	4.9	1.9	.4
	Hispanic	698	5.5	4.1	6.9	5.1	1.3	.3
	Mexican	489	5.4	4.2	6.7	5.2	1.4	.3
	Cuban	37	8.0	5.3	9.3	5.5	1.3	.2
	Puerto Rican	115	5.6	4.4	7.4	5.4	1.8	.4
	Other Hispanic	56	5.6	3.1	6.3	3.9	.8	.3
	Black	595	4.5	3.7	6.4	4.5	1.9	.5
	White	1439	7.4	4.4	9.5	4.7	2.1	.5
Second		2669	8.6	4.6	10.8	4.9	2.2	.5
	Hispanic	312	6.0	4.3	7.9	4.9	1.9	.5
	Mexican	191	5.8	3.8	7.5	4.8	1.8	.5
	Cuban	39	8.6	6.0	10.5	5.8	1.8	.3
	Puerto Rican	40	5.7	4.9	6.5	5.3	.8	.2
	Other Hispanic	42	6.0	4.0	8.7	4.1	2.8	.7
	Black	395	5.3	4.1	7.4	4.5	2.0	.5
	White	1962	9.1	4.5	11.4	4.7	2.3	.5
Third		2558	9.8	4.7	12.0	4.9	2.2	.5
	Hispanic	241	7.7	4.5	9.6	5.3	1.9	.4
	Mexican	128	7.5	4.4	9.1	5.3	1.6	.4
	Cuban	43	9.9	4.1	10.8	4.6	.9	.2
	Puerto Rican	23	a	a	a	a	a	a
	Other Hispanic	48	7.8	4.7	10.1	5.4	2.3	.5
	Black	324	6.2	4.7	8.2	5.3	1.9	.4
	White	1993	10.2	4.6	12.4	4.7	2.2	.5
Highest		2819	11.8	4.6	14.1	4.7	2.3	.5
	Hispanic	176	9.7	4.3	12.4	5.1	2.7	.6
	Mexican	65	8.9	4.2	11.7	4.9	2.9	.7
	Cuban	50	9.4	5.2	12.5	5.1	3.1	.3
	Puerto Rican	13	a	a	a	a	a	a
	Other Hispanic	48	11.2	4.0	13.9	4.3	2.7	.7
	Black	226	8.0	5.2	10.5	5.4	2.5	.5
	White	2417	12.1	4.5	14.3	4.5	2.3	.5

a - Sample size too small for reliable estimation.
* See table 3A "*".
See table 3A "".
# See table 3A "note".

Table 3C

Mean IRT Scores in Vocabulary
Academic Year, Race/Ethnicity and Home Language

Home Language	Race/ Ethnicity	n*	Sophomore Mean	Sophomore SD**	Senior Mean	Senior SD	Change	Effect Size#
Non Engl Dominant		819	6.3	4.5	8.3	5.3	2.0	.4
	Hispanic	684	5.8	4.3	7.6	5.1	1.8	.4
	Mexican	378	5.0	4.0	6.5	4.8	1.5	.4
	Cuban	130	8.4	4.6	10.4	5.1	2.1	.5
	Puerto Rican	122	5.4	3.9	7.7	5.3	2.3	.6
	Other Hispanic	54	8.2	4.4	10.1	4.9	1.9	.4
	Black	10	a	a	a	a	a	a
	White	125	7.5	4.8	9.7	5.3	2.2	.5
English Dominant		1135	10.2	5.0	12.7	5.2	2.5	.5
	Hispanic	450	7.8	4.9	9.9	5.6	2.1	.4
	Mexican	345	7.2	4.6	9.2	5.5	2.0	.4
	Cuban	23	15.0	4.8	16.2	4.6	1.3	.3
	Puerto Rican	36	8.9	4.6	11.0	5.0	2.1	.5
	Other Hispanic	46	8.9	5.4	11.7	5.3	2.7	.5
	Black	57	7.7	4.9	10.8	5.4	3.1	.6
	White	627	10.8	4.8	13.3	4.9	2.5	.5
English Monoling		8909	9.2	4.9	11.4	5.2	2.1	.4
	Hispanic	305	6.0	4.1	7.5	5.1	1.4	.3
	Mexican	155	5.9	4.0	7.1	5.0	1.2	.3
	Cuban	18	a	a	a	a	a	a
	Puerto Rican	39	4.4	4.2	4.8	5.3	.4	.1
	Other Hispanic	93	6.5	4.0	8.3	4.9	1.9	.5
	Black	1507	5.3	4.3	7.2	4.9	1.9	.5
	White	7097	9.9	4.8	12.1	5.0	2.2	.5

a = Sample size too small for reliable estimation.
* See table 3A "*".
See table 3A "".
# See table 3A "note".

Table 3D

Mean IRT Scores in Vocabulary
Academic Year, Race/Ethnicity and English Proficiency

Speak/ Understand English	Race/ Ethnicity		Sophomore		Senior			Effect
		n*	Mean	SD**	Mean	SD	Change	Size#
NOT AT ALL		2	a	a	a	a	a	a
	Hispanic	8	.0	.0	.0	.0	.0	.0
	Mexican	0	.0	.0	.0	.0	.0	.0
	Cuban	0	.0	.0	.0	.0	.0	.0
	Puerto Rican	0	.0	.0	.0	.0	.0	.0
	Other Hispanic	0	.0	.0	.0	.0	.0	.0
	Black	0	.0	.0	.0	.0	.0	.0
	White	2	a	a	a	a	a	a
NOT VERY WELL		9	a	a	a	a	a	a
	Hispanic	8	a	a	a	a	a	a
	Mexican	5	a	a	a	a	a	a
	Cuban	1	a	a	a	a	a	a
	Puerto Rican	1	a	a	a	a	a	a
	Other Hispanic	1	a	a	a	a	a	a
	Black	1	a	a	a	a	a	a
	White	0	.0	.0	.0	.0	.0	.0
PRETTY WELL		215	5.4	4.2	6.9	4.7	1.5	.4
	Hispanic	170	4.4	3.5	5.7	4.3	1.3	.4
	Mexican	124	4.2	3.3	4.9	3.9	.7	.2
	Cuban	17	a	a	a	a	a	a
	Puerto Rican	17	a	a	a	a	a	a
	Other Hispanic	12	a	a	a	a	a	a
	Black	3	a	a	a	a	a	a
	White	43	7.7	4.7	10.1	4.5	2.4	.5
VERY WELL		1840	9.8	5.1	12.1	5.4	2.3	.5
	Hispanic	994	7.2	4.7	9.2	5.5	2.0	.4
	Mexican	619	6.9	4.5	9.1	5.3	2.2	.5
	Cuban	138	10.6	4.9	12.3	5.0	1.8	.4
	Puerto Rican	142	6.6	4.5	8.6	5.5	2.1	.5
	Other Hispanic	94	9.4	4.8	11.9	4.8	2.6	.5
	Black	76	7.4	5.1	11.0	5.6	3.7	.7
	White	771	11.0	4.8	13.4	4.9	2.3	.5

a = Sample size too small for reliable estimation.
* See table 3A "*".
See table 3A "".
# See table 3A "note".

Table 3E

Mean IRT Scores in Vocabulary
Academic Year, Race/Ethnicity and Spanish Proficiency

Speak/ Understand Spanish	Race/ Ethnicity	n*	Sophomore Mean	SD**	Senior Mean	SD	Change	Effect Size#
NOT AT ALL		99	9.0	4.7	11.5	5.1	2.5	.5
	Hispanic	15	a	a	a	a	a	a
	Mexican	12	a	a	a	a	a	a
	Cuban	0	a	a	a	a	a	a
	Puerto Rican	2	a	a	a	a	a	a
	Other Hispanic	1	a	a	a	a	a	a
	Black	4	a	a	a	a	a	a
	White	80	9.1	4.7	11.7	4.8	2.6	.6
NOT VERY WELL		398	10.5	4.8	12.7	5.1	2.2	.5
	Hispanic	108	7.6	5.0	9.5	5.9	1.9	.4
	Mexican	79	7.3	5.0	8.9	6.0	1.7	.3
	Cuban	1	a	a	a	a	a	a
	Puerto Rican	12	a	a	a	a	a	a
	Other Hispanic	16	a	a	a	a	a	a
	Black	21	a	a	a	a	a	a
	White	269	11.1	4.5	13.3	4.7	2.2	.5
PRETTY WELL		834	9.7	5.2	12.0	5.6	2.3	.4
	Hispanic	474	6.6	4.5	8.3	5.2	1.6	.4
	Mexican	347	6.0	4.3	7.6	5.1	1.6	.4
	Cuban	47	10.3	5.6	12.2	4.7	2.0	.4
	Puerto Rican	53	7.4	4.1	8.9	4.4	1.4	.4
	Other Hispanic	27	a	a	a	a	a	a
	Black	43	6.8	5.1	10.3	5.2	3.5	.7
	White	317	11.3	4.8	13.8	4.9	2.5	.5
VERY WELL		752	7.4	5.1	9.6	5.7	2.2	.4
	Hispanic	580	6.4	4.6	8.6	5.5	2.2	.5
	Mexican	312	5.7	4.1	7.7	5.3	2.0	.5
	Cuban	107	9.2	4.8	10.8	5.4	1.6	.3
	Puerto Rican	96	5.4	4.5	8.3	5.9	2.9	.6
	Other Hispanic	64	8.1	4.8	10.5	5.2	2.4	.5
	Black	15	a	a	a	a	a	a
	White	157	8.7	5.3	10.9	5.6	2.3	.4

a - Sample size too small for reliable estimation.
* See table 3A "*".
See table 3A "".
# See table 3A "note".

Table 3F

Mean IRT Scores in Vocabulary by Academic Year, Race/Ethnicity and Country of Origin

Country of Origin	Race/ Ethnicity	n*	Sophomore		Senior		Change	Effect Size#
			Mean	SD**	Mean	SD		
USA		10311	9.3	5.0	11.5	5.2	2.2	.4
	Hispanic	1175	6.5	4.4	8.1	5.3	1.7	.4
	Mexican	779	6.2	4.3	7.8	5.3	1.6	.4
	Cuban	91	9.1	5.4	10.5	6.0	1.4	.3
	Puerto Rican	153	5.5	4.2	7.2	5.5	1.7	.4
	Other Hispanic	152	7.1	4.4	9.0	5.1	1.9	.4
	Black	1482	5.4	4.3	7.3	4.9	1.9	.4
	White	7655	10.0	4.8	12.2	4.9	2.2	.5
OUTSIDE USA		482	8.1	5.0	9.9	5.7	1.8	.4
	Hispanic	255	6.4	4.9	8.3	5.6	1.9	.4
	Mexican	93	4.6	4.2	5.8	5.0	1.1	.3
	Cuban	77	8.4	5.3	10.2	5.3	1.8	.3
	Puerto Rican	42	6.6	4.8	8.6	5.8	2.0	.4
	Other Hispanic	42	7.6	4.8	10.6	5.0	3.0	.6
	Black	64	6.8	4.9	10.7	5.7	3.9	.8
	White	162	9.1	4.8	10.5	5.5	1.4	.3

* See table 3A "*".
See table 3A "".
# See table 3A "note".

Table 3G

Mean IRT Scores in Vocabulary by Academic Year, Race/Ethnicity and Length of Residence

Length of Residence	Race/ Ethnicity	n*	Sophomore Mean	Sophomore SD**	Senior Mean	Senior SD	Change	Effect Size#
1 to 5 Years		250	7.1	5.0	9.1	5.9	2.0	.4
	Hispanic	125	4.8	4.0	6.5	5.2	1.6	.4
	Mexican	45	3.0	2.7	3.9	4.0	1.0	.3
	Cuban	27	a	a	a	a	a	a
	Puerto Rican	25	a	a	a	a	a	a
	Other Hispanic	28	a	a	a	a	a	a
	Black	44	6.1	4.3	9.1	5.0	3.1	.7
	White	82	8.6	5.2	10.5	6.1	1.9	.4
6 to 10 Years		309	8.5	5.4	10.6	5.8	2.1	.4
	Hispanic	93	7.4	4.8	9.9	5.7	2.5	.5
	Mexican	31	6.7	4.3	8.5	5.6	1.8	.4
	Cuban	34	9.4	5.3	11.8	5.0	2.4	.4
	Puerto Rican	15	a	a	a	a	a	a
	Other Hispanic	13	a	a	a	a	a	a
	Black	51	4.1	3.6	6.6	5.3	2.6	.7
	White	166	9.6	5.2	11.5	5.5	1.9	.4
11 or More		10239	9.3	4.9	11.5	5.2	2.2	.4
	Hispanic	1214	6.6	4.5	8.2	5.3	1.7	.4
	Mexican	797	6.3	4.3	7.8	5.3	1.6	.4
	Cuban	108	9.2	5.6	10.5	5.9	1.3	.2
	Puerto Rican	154	5.8	4.3	7.4	5.5	1.6	.4
	Other Hispanic	155	7.2	4.4	9.2	5.1	2.0	.5
	Black	1451	5.4	4.3	7.4	4.9	1.9	.4
	White	7575	10.0	4.8	12.2	4.9	2.2	.5

a - Sample size too small for reliable estimation.
* See table 3A "*".
See table 3A "".
# See table 3A "note".

Table 3H

Mean IRT Scores in Vocabulary by Academic Year, Race/Ethnicity, and Carnegie Units in the New Basics

Carnegie Units in the New Basics	Race/ Ethnicity	n*	Sophomore Mean	Sophomore SD**	Senior Mean	Senior SD	Change	Effect Size#
Lowest		2075	6.8	4.3	8.7	4.8	1.9	.4
	Hispanic	294	4.8	3.7	5.8	4.2	1.0	.3
	Mexican	172	4.5	3.5	5.6	4.1	1.1	.3
	Cuban	31	6.6	5.7	7.9	6.0	1.3	.2
	Puerto Rican	63	4.7	3.5	5.0	3.9	.4	.1
	Other Hispanic	28	5.3	3.4	6.3	3.9	.9	.3
	Black	304	4.5	3.7	6.1	4.3	1.6	.4
	White	1477	7.3	4.2	9.3	4.7	2.0	.5
Second		2907	7.9	4.6	10.0	4.9	2.1	.5
	Hispanic	441	5.9	4.2	7.5	5.0	1.6	.4
	Mexican	286	5.6	4.0	7.0	5.0	1.4	.4
	Cuban	31	6.9	4.3	8.1	4.9	1.2	.3
	Puerto Rican	62	5.4	4.4	7.7	5.5	2.3	.5
	Other Hispanic	61	6.7	4.5	8.5	4.6	1.8	.4
	Black	453	4.5	3.7	6.4	4.3	1.9	.5
	White	2012	8.6	4.4	10.8	4.6	2.2	.5
Third		2654	9.5	4.8	11.8	5.1	2.3	.5
	Hispanic	390	7.1	4.3	8.9	5.4	1.8	.4
	Mexican	264	6.4	4.3	8.1	5.3	1.7	.4
	Cuban	49	8.9	4.1	10.0	3.8	1.2	.3
	Puerto Rican	35	6.5	3.9	8.9	6.0	2.4	.6
	Other Hispanic	42	8.9	3.8	11.0	5.0	2.1	.6
	Black	420	5.4	4.3	7.5	5.0	2.0	.5
	White	1844	10.3	4.5	12.7	4.6	2.3	.5
Highest		3265	11.9	4.7	14.3	4.6	2.3	.5
	Hispanic	323	9.0	4.9	12.0	5.2	3.0	.6
	Mexican	162	9.4	4.4	12.1	4.8	2.7	.6
	Cuban	60	11.5	5.1	14.2	4.6	2.7	.5
	Puerto Rican	36	8.5	5.2	11.9	5.5	3.5	.7
	Other Hispanic	65	7.8	4.9	11.1	5.4	3.3	.7
	Black	400	7.6	4.9	10.0	5.2	2.4	.5
	White	2542	12.4	4.4	14.7	4.3	2.3	.5

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* See table 3A "*".
See table 3A "".
# See table 3A "note".

Table 3I

Mean IRT Scores in Vocabulary by Academic Year, Race/Ethnicity and Educational Aspiration

Post Sec Educ Plans	Race/ Ethnicity	n*	Sophomore		Senior		Change	Effect Size#
			Mean	SD**	Mean	SD		
HS ONLY		2150	6.4	4.1	8.2	4.6	1.8	.4
	Hispanic	303	4.3	3.3	5.4	4.1	1.1	.3
	Mexican	221	4.1	3.1	5.1	4.0	1.0	.3
	Cuban	12	a	a	a	a	a	a
	Puerto Rican	49	3.5	3.1	4.7	4.3	1.2	.4
	Other Hispanic	22	a	a	a	a	a	a
	Black	227	4.2	3.3	5.2	4.1	1.0	.3
	White	1620	6.8	4.1	8.8	4.4	1.9	.5
SOME COLLEGE		1990	7.5	4.3	9.5	4.6	1.9	.5
	Hispanic	268	5.7	4.1	6.3	4.8	.6	.2
	Mexican	177	5.4	4.0	6.1	4.7	.6	.2
	Cuban	15	a	a	a	a	a	a
	Puerto Rican	39	6.1	4.6	7.1	5.1	1.0	.2
	Other Hispanic	37	5.7	3.7	5.9	4.8	.3	.1
	Black	288	4.0	3.2	6.1	4.0	2.1	.6
	White	1434	8.2	4.1	10.2	4.4	2.0	.5
COLLEGE		1888	9.0	4.5	11.3	4.8	2.3	.5
	Hispanic	296	7.0	4.2	9.4	4.6	2.5	.6
	Mexican	185	6.9	3.9	9.2	4.7	2.3	.6
	Cuban	29	a	a	a	a	a	a
	Puerto Rican	42	6.4	3.8	8.2	4.7	1.8	.5
	Other Hispanic	40	7.4	5.0	10.5	4.2	3.1	.6
	Black	293	4.8	3.7	7.0	4.6	2.2	.6
	White	1298	9.8	4.2	12.1	4.4	2.2	.5
COLLEGE AND BEYOND		4814	11.7	4.8	14.1	4.7	2.4	.5
	Hispanic	567	8.5	4.8	11.1	5.4	2.6	.6
	Mexican	293	8.2	4.8	10.7	5.4	2.6	.5
	Cuban	113	9.4	5.4	11.6	5.4	2.1	.4
	Puerto Rican	64	7.7	4.6	10.6	5.9	2.9	.6
	Other Hispanic	97	9.0	4.5	11.7	5.0	2.8	.6
	Black	754	6.9	5.0	9.2	5.2	2.3	.5
	White	3494	12.4	4.3	14.9	4.1	2.4	.6

a = Sample size too small for reliable estimation.
* See table 3A "*".
See table 3A "".
# See table 3A "note".

Table 4A

Mean IRT Scores in Reading by Academic Year, Race/Ethnicity and Sex

Sex	Race/ Ethnicity	n*	Sophomore Mean	Sophomore SD**	Senior Mean	Senior SD	Change	Effect Size#
Total		10375	7.6	4.4	8.9	4.8	1.3	.3
	Hispanic	1353	5.4	3.7	6.6	4.3	1.2	.3
	Mexican	847	5.1	3.6	6.3	4.2	1.2	.3
	Cuban	156	7.7	4.8	8.8	5.3	1.1	.2
	Puerto Rican	169	5.3	3.9	6.4	4.3	1.1	.3
	Other Hispanic	181	5.6	3.6	6.9	4.3	1.3	.4
	Black	1535	5.1	3.6	6.0	4.0	.9	.2
	White	7488	8.3	4.4	9.5	4.7	1.2	.3
Male		4978	7.8	4.5	9.2	4.8	1.4	.3
	Hispanic	625	5.5	3.9	6.9	4.4	1.4	.4
	Mexican	387	5.2	3.6	6.7	4.2	1.5	.4
	Cuban	64	8.7	4.8	9.2	5.8	.4	.1
	Puerto Rican	82	5.8	4.2	7.1	4.8	1.3	.3
	Other Hispanic	92	5.3	3.7	6.7	4.1	1.4	.4
	Black	732	5.4	3.9	6.4	4.0	1.1	.3
	White	3621	8.3	4.5	9.7	4.7	1.4	.3
Female		5398	7.5	4.4	8.7	4.8	1.2	.3
	Hispanic	728	5.3	3.6	6.3	4.2	1.1	.3
	Mexican	460	5.0	3.5	5.9	4.1	1.0	.3
	Cuban	92	6.8	4.5	8.5	4.8	1.7	.4
	Puerto Rican	87	4.8	3.4	5.6	3.5	.9	.3
	Other Hispanic	89	5.8	3.4	7.1	4.5	1.3	.4
	Black	803	4.9	3.4	5.7	3.9	.7	.2
	White	3867	8.0	4.4	9.3	4.7	1.3	.3

* The number of cases in each analysis varied according to the response rate on the variable analyzed.

**SD - Standard Deviation.

Note#: Effect size is computed with the following general formula $(\bar{X}_1 - \bar{X}_2)/SD_1$ where $\bar{X}_1$ and SD_1, refer to sophomore year mean test score and standard deviation and $\bar{X}_2$ refer to senior year mean test score.

Table 4B

Mean IRT Scores in Reading by Academic Year, Race/Ethnicity and SES

SES Quartile	Race/ Ethnicity	n*	Sophomore		Senior		Change	Effect Size#	
			Mean	SD**	Mean	SD			
Lowest		2591	5.7	3.8	6.7	4.1	1.1	.3	
	Hispanic	657	4.9	3.4	5.7	4.1	.8	.2	
	Mexican	471	4.9	3.5	5.8	4.1	1.0	.3	
	Cuban	37	6.6	4.5	6.6	5.5	.0	.0	
	Puerto Rican	98	5.2	3.9	6.0	4.2	.8	.2	
	Other Hispanic	50	4.3	2.2	4.4	2.7	.1	.1	
	Black	591	4.6	3.3	5.5	3.5	.8	.3	
	White	1342	6.1	3.9	7.4	4.2	1.2	.3	
Second		2529	7.2	4.2	8.3	4.5	1.1	.3	
	Hispanic	287	4.8	3.4	6.3	3.9	1.5	.4	
	Mexican	180	4.5	3.1	5.7	3.7	1.2	.4	
	Cuban	35	7.4	4.2	9.6	4.9	2.2	.5	
	Puerto Rican	34	5.4	4.0	6.6	4.0	1.2	.3	
	Other Hispanic	38	4.4	3.1	6.4	3.5	2.1	.7	
	Black	387	5.1	3.4	5.9	3.8	.7	.2	
	White	1855	7.6	4.2	8.7	4.5	1.1	.3	
Third		2445	8.1	4.3	9.4	4.7	1.3	.3	
	Hispanic	224	5.9	3.8	7.7	4.1	1.8	.5	
	Mexican	123	5.5	3.6	7.6	4.1	2.1	.6	
	Cuban	37	8.0	4.5	8.3	3.9	.3	.1	
	Puerto Rican	a	a	a	a	a	a	a	a
	Other Hispanic	45	6.2	3.9	7.6	4.1	1.4	.4	
	Black	313	5.6	4.0	6.5	4.3	.9	.2	
	White	1907	8.4	4.3	9.7	4.6	1.3	.3	
Highest		2703	9.5	4.5	11.1	4.6	1.6	.4	
	Hispanic	166	8	4.2	9.6	4.8	1.6	.4	
	Mexican	63	7.7	4	8.5	4.6	.9	.2	
	Cuban	46	9.1	5.4	11.2	5.1	2.1	.4	
	Puerto Rican	a	a	a	a	a	a	a	
	Other Hispanic	46	8.3	3.7	10.4	4.7	2.1	.6	
	Black	208	7	4.5	8.6	4.7	1.5	.3	
	White	2329	9.7	4.4	11.3	4.6	1.6	.4	

a - Sample size too small for reliable estimation.
* See table 4A "*".
See table 4A "".
# See table 4A "note".

Table 4C

Mean IRT Scores in Reading
Academic Year, Race/Ethnicity and Home Language

Home Language	Race/ Ethnicity	n*	Sophomore		Senior		Change	Effect Size#
			Mean	SD**	Mean	SD		
Non Engl Dominant		774	5.4	3.8	6.8	4.3	1.4	.4
	Hispanic	646	5.1	3.5	6.2	4.0	1.2	.3
	Mexican	372	4.6	3.1	5.7	3.6	1.2	.4
	Cuban	117	7.1	4.4	8.7	4.6	1.6	.4
	Puerto Rican	105	5.1	3.6	6.3	4.0	1.2	.3
	Other Hispanic	51	6.3	3.5	6.8	4.5	.4	.1
	Black	8	a	a	a	a	a	a
	White	120	6.1	4.2	8.0	4.7	1.8	.4
English Dominant		1086	8.5	4.6	9.9	4.9	1.4	.3
	Hispanic	423	6.6	4.2	8.0	4.5	1.4	.3
	Mexican	325	6.2	3.9	7.5	4.4	1.3	.3
	Cuban	22	a	a	a	a	a	a
	Puerto Rican	33	7.4	4.0	8.1	4.4	.7	.2
	Other Hispanic	43	7.0	4.5	8.7	4.1	1.7	.4
	Black	58	7.1	4.3	7.9	4.9	.8	.2
	White	605	8.9	4.6	10.4	4.8	1.5	.3
English Monoling		8480	7.6	4.4	8.9	4.8	1.3	.3
	Hispanic	274	4.8	3.4	6.0	4.3	1.2	.3
	Mexican	143	4.6	3.5	5.7	4.3	1.1	.3
	Cuban	16	a	a	a	a	a	a
	Puerto Rican	31	4.2	3.9	5.4	4.6	1.2	.3
	Other Hispanic	85	5.1	3.2	6.4	4.1	1.4	.4
	Black	1467	5.1	3.6	5.9	3.9	1.4	.4
	White	6739	8.1	4.4	9.4	4.7	1.3	.3

a - Sample size too small for reliable estimation.
* See table 4A "*".
See table 4A "".
# See table 4A "note".

Table 4D

Mean IRT Scores in Reading by Academic Year, Race/Ethnicity and English Proficiency

Speak Understand English	Race/ Ethnicity	n*	Sophomore Mean	Sophomore SD**	Senior Mean	Senior SD	Change	Effect Size#
NOT AT ALL		2	a	a	a	a	a	a
	Hispanic	0	.0	.0	.0	.0	.0	.0
	Mexican	0	.0	.0	.0	.0	.0	.0
	Cuban	0	.0	.0	.0	.0	.0	.0
	Puerto Rican	0	.0	.0	.0	.0	.0	.0
	Other Hispanic	0	.0	.0	.0	.0	.0	.0
	Black	0	.0	.0	.0	.0	.0	.0
	White	2	a	a	a	a	a	a
NOT VERY WELL		6	a	a	a	a	a	a
	Hispanic	5	a	a	a	a	a	a
	Mexican	4	a	a	a	a	a	a
	Cuban	0	.0	.0	.0	.0	.0	.0
	Puerto Rican	1	a	a	a	a	a	a
	Other Hispanic	0	.0	.0	.0	.0	.0	.0
	Black	1	a	a	a	a	a	a
	White	0	.0	.0	.0	.0	.0	.0
PRETTY WELL		197	4.7	3.3	5.8	3.7	1.1	.3
	Hispanic	155	4.2	2.8	5.5	3.3	1.3	.5
	Mexican	120	4.0	2.6	5.4	3.1	1.4	.5
	Cuban	12	a	a	a	a	a	a
	Puerto Rican	13	a	a	a	a	a	a
	Other Hispanic	11	a	a	a	a	a	a
	Black	4	a	a	a	a	a	a
	White	38	5.5	3.8	6.5	4.1	1.1	.3
VERY WELL		1759	8.1	4.5	9.5	4.9	1.4	.3
	Hispanic	946	6.0	3.9	7.3	4.4	1.3	.3
	Mexican	596	5.6	3.7	6.9	4.2	1.3	.4
	Cuban	131	8.3	4.9	9.6	5.2	1.3	.3
	Puerto Rican	129	6.0	3.8	7.2	4.3	1.2	.3
	Other Hispanic	90	6.7	4.0	8.0	4.6	1.3	.3
	Black	73	6.4	4.5	7.4	4.8	1.0	.2
	White	740	9.0	4.4	10.4	4.7	1.4	.3

a - Sample size too small for reliable estimation.
* See table 4A "*".
See table 4A "".
# See table 4A "note".

Table 4E

Mean IRT Scores in Reading by Academic Year, Race/Ethnicity and Spanish Proficiency

Speak/ Understand Spanish	Race/ Ethnicity	n*	Sophomore		Senior		Change	Effect Size#
			Mean	SD**	Mean	SD		
NOT AT ALL		92	7.3	4.2	8.6	4.7	1.3	.3
	Hispanic	14	a	a	a	a	a	a
	Mexican	11	a	a	a	a	a	a
	Cuban	0	a	a	a	a	a	a
	Puerto Rican	2	a	a	a	a	a	a
	Other Hispanic	1	a	a	a	a	a	a
	Black	5	a	a	a	a	a	a
	White	73	7.2	4.2	8.4	4.6	1.3	.3
NOT VERY WELL		378	8.6	4.3	9.6	4.7	1.1	.2
	Hispanic	98	6.1	4.3	7.2	4.5	1.1	.3
	Mexican	72	6.2	4.1	7.1	4.4	.9	.2
	Cuban	1	a	a	a	a	a	a
	Puerto Rican	9	a	a	a	a	a	a
	Other Hispanic	16	a	a	a	a	a	a
	Black	18	a	a	a	a	a	a
	White	262	9.1	4.0	10.1	4.5	1.0	.3
PRETTY WELL		805	7.9	4.7	9.4	5.0	1.5	.3
	Hispanic	453	5.4	3.6	6.4	4.0	1.0	.3
	Mexican	333	4.9	3.3	6.2	3.7	1.3	.4
	Cuban	42	8.5	4.4	9.7	5.2	1.2	.3
	Puerto Rican	51	6.1	3.6	6.3	3.3	.2	.1
	Other Hispanic	27	a	a	a	a	a	a
	Black	44	6.4	4.3	6.8	5.0	.4	.1
	White	307	9.1	4.6	10.9	4.8	1.8	.4
VERY WELL		703	6.8	4.4	8.3	4.8	1.6	.4
	Hispanic	544	5.8	3.9	7.3	4.5	1.6	.4
	Mexican	305	5.2	3.5	6.6	4.2	1.4	.4
	Cuban	99	7.8	4.9	9.3	4.8	1.5	.3
	Puerto Rican	81	5.3	4.0	7.2	4.8	1.9	.5
	Other Hispanic	58	7.0	3.4	8.8	4.1	1.8	.5
	Black	13	5.9	3.2	7.7	3.2	1.9	.6
	White	146	7.9	4.8	9.5	5.0	1.6	.3

a - Sample size too small for reliable estimation.
* See table 4A "*".
See table 4A "".
# See table 4A "note".

Table 4F

Mean IRT Scores in Reading by Academic Year, Race/Ethnicity and Country of Origin

Country of Origin	Race/ Ethnicity	n*	Sophomore		Senior		Change	Effect Size#
			Mean	SD**	Mean	SD		
USA		9824	7.7	4.4	9.0	4.8	1.3	.3
	Hispanic	1101	5.3	3.7	6.4	4.3	1.1	.3
	Mexican	750	5.1	3.5	6.2	4.2	1.1	.3
	Cuban	81	8.2	4.7	8.9	5.4	.7	.2
	Puerto Rican	133	5.2	3.8	5.9	3.8	.7	.2
	Other Hispanic	137	5.4	3.6	6.7	4.3	1.3	.4
	Black	1443	5.1	3.6	6.0	3.9	.9	.2
	White	7280	8.2	4.4	9.5	4.7	1.3	.3
OUTSIDE USA		452	6.5	4.1	8.3	4.5	1.9	.4
	Hispanic	236	5.8	3.9	7.5	4.3	1.7	.4
	Mexican	87	4.5	3.4	6.7	3.4	2.2	.6
	Cuban	72	7.4	4.8	8.8	5.1	1.5	.3
	Puerto Rican	36	5.7	4.0	8.1	5.2	2.4	.6
	Other Hispanic	42	6.5	3.2	7.3	4.0	.8	.2
	Black	60	6.4	4.6	7.7	5.0	1.3	.3
	White	155	6.9	4.1	8.9	4.5	2.0	.5

* See table 4A "*".
See table 4A "".
# See table 4A "note".

Table 4G

Mean IRT Scores in Reading by Academic Year, Race/Ethnicity and Length of Residence

Length of Residence	Race/ Ethnicity	n*	Sophomore		Senior		Change	Effect Size#
			Mean	SD**	Mean	SD		
1 to 5 Years		230	6.5	4.5	8.1	4.9	1.6	.3
	Hispanic	109	5.0	3.4	6.6	3.8	1.7	.5
	Mexican	38	4.4	2.6	5.7	2.8	1.3	.5
	Cuban	23	a	a	a	a	a	a
	Puerto Rican	20	a	a	a	a	a	a
	Other Hispanic	29	a	a	a	a	a	a
	Black	42	5.1	3.7	6.3	4.3	1.2	.3
	White	79	7.9	4.8	9.5	5.2	1.7	.3
6 to 10 Years		295	7.1	4.7	8.7	4.7	1.6	.3
	Hispanic	90	6.0	4.4	7.9	4.7	1.9	.4
	Mexican	34	4.8	4.4	7.4	4.1	2.6	.6
	Cuban	33	8.2	4.7	10.2	5.4	2.0	.4
	Puerto Rican	12	a	a	a	a	a	a
	Other Hispanic	11	a	a	a	a	a	a
	Black	47	3.9	3.5	5.9	3.9	1.9	.6
	White	159	8.0	4.7	9.4	4.6	1.5	.3
11 or More		9755	7.7	4.4	9.0	4.8	1.3	.3
	Hispanic	1141	5.4	3.7	6.5	4.3	1.1	.3
	Mexican	766	5.2	3.5	6.3	4.2	1.1	.3
	Cuban	99	8.1	4.9	8.6	5.4	.5	.1
	Puerto Rican	136	5.3	3.9	6.2	4.1	.9	.2
	Other Hispanic	141	5.5	3.6	6.8	4.2	1.3	.4
	Black	1415	5.2	3.7	6.0	3.9	.8	.2
	White	7199	8.2	4.4	9.5	4.7	1.3	.3

a = Sample size too small for reliable estimation.
* See table 4A "*".
See table 4A "".
# See table 4A "note".

Table 4H

Mean IRT Scores in Reading by Academic Year, Race/Ethnicity, and Carnegie Units in the New Basics

Carnegie Units in the New Basics	Race/ Ethnicity	n*	Sophomore		Senior		Change	Effect Size#
			Mean	SD**	Mean	SD		
Lowest		1869	5.5	3.6	6.5	4.0	1.0	.3
	Hispanic	253	3.9	2.8	4.9	3.6	1.0	.4
	Mexican	148	3.7	2.7	5.1	3.3	1.3	.5
	Cuban	26	a	a	a	a	a	a
	Puerto Rican	52	3.6	2.0	4.3	3.5	.7	.3
	Other Hispanic	28	a	a	a	a	a	a
	Black	291	3.9	3.1	4.7	3.3	.8	.3
	White	1325	5.9	3.6	6.9	4.0	1.1	.3
Second		2735	6.5	3.9	7.5	4.3	1.0	.3
	Hispanic	400	4.9	3.3	6.0	3.9	1.0	.3
	Mexican	273	4.7	3.1	5.8	4.1	1.1	.4
	Cuban	25	a	a	a	a	a	a
	Puerto Rican	51	5.4	4.2	6.4	3.7	1.0	.2
	Other Hispanic	50	5.4	3.3	5.9	3.6	.6	.2
	Black	433	4.7	3.1	5.1	3.3	.5	.1
	White	1902	6.8	3.9	8.0	4.3	1.1	.3
Third		2556	7.8	4.3	9.1	4.5	1.3	.3
	Hispanic	373	5.9	3.6	6.9	4.2	1.0	.3
	Mexican	262	5.5	3.6	6.3	4.2	.9	.2
	Cuban	43	8.5	4.0	9.2	4.0	.7	.2
	Puerto Rican	30	6.2	3.4	6.7	2.5	.5	.1
	Other Hispanic	38	6.3	3.1	8.1	4.2	1.8	.6
	Black	411	5.0	3.6	6.1	3.8	1.1	.3
	White	1773	8.4	4.2	9.7	4.4	1.4	.3
Highest		3215	7.8	4.3	9.1	5.4	1.3	.3
	Hispanic	326	7.3	4.5	9.4	4.5	2.0	.4
	Mexican	164	7.0	4.3	8.9	4.2	1.9	.4
	Cuban	62	9.8	5.2	11.2	5.7	1.4	.3
	Puerto Rican	35	8.2	4.6	10.9	4.7	2.6	.6
	Other Hispanic	65	6.6	4.2	8.9	4.2	2.3	.5
	Black	400	7.3	4.1	8.6	4.4	1.3	.3
	White	2489	10.4	4.3	12.0	4.4	1.6	.4

a - Sample size too small for reliable estimation.
* See table 4A "*".
See table 4A "".
# See table 4A "note".

Table 4I

Mean IRT Scores in Reading by Academic Year, Race/Ethnicity and Educational Aspiration

Post Sec Educ Plans	Race/ Ethnicity	n*	Sophomore		Senior		Change	Effect Size#
			Mean	SD**	Mean	SD		
HS ONLY		1917	5.3	3.5	6.2	3.8	.8	.2
	Hispanic	270	3.9	3.0	4.2	3.0	.2	.1
	Mexican	203	3.7	2.7	4.2	3.0	.5	.2
	Cuban	9	a	a	a	a	a	a
	Puerto Rican	39	3.7	3.2	3.8	2.9	.1	.0
	Other Hispanic	20	a	a	a	a	a	a
	Black	200	4.0	2.9	4.7	3.2	.7	.2
	White	1447	5.6	3.5	6.5	3.8	.9	.2
SOME COLLEGE		1891	6.1	3.8	7.1	4.0	1.0	.3
	Hispanic	248	4.5	3.1	5.7	3.9	1.2	.4
	Mexican	169	4.3	2.9	5.4	3.9	1.1	.4
	Cuban	16	a	a	a	a	a	a
	Puerto Rican	34	5.3	3.4	5.4	3.5	.1	.0
	Other Hispanic	29	a	a	a	a	a	a
	Black	290	4.1	2.8	4.8	2.9	.7	.3
	White	1353	6.6	3.8	7.6	4.0	1.0	.3
COLLEGE		1807	7.2	4.0	8.5	4.3	1.3	.3
	Hispanic	275	5.5	3.4	6.9	3.8	1.4	.4
	Mexican	176	5.5	3.5	7.0	3.7	1.5	.4
	Cuban	24	a	a	a	a	a	a
	Puerto Rican	36	5.2	3.5	6.2	3.4	1.0	.3
	Other Hispanic	39	5.1	3.0	6.4	4.1	1.3	.4
	Black	288	4.6	3.2	5.6	3.5	.9	.3
	White	1245	7.8	3.9	9.1	4.3	1.3	.3
COLLEGE AND BEYOND		4711	9.7	4.5	11.3	4.6	1.6	.4
	Hispanic	548	7.0	4.1	8.9	4.5	1.9	.5
	Mexican	292	6.7	4.0	8.5	4.4	1.8	.5
	Cuban	106	8.2	5.0	10.1	5.2	1.9	.4
	Puerto Rican	58	6.9	4.3	9.5	4.2	2.6	.6
	Other Hispanic	93	7.2	3.8	8.8	4.3	1.7	.4
	Black	741	6.4	4.2	7.5	4.5	1.0	.2
	White	3422	10.2	4.3	11.9	4.3	1.7	.4

a - Sample size too small for reliable estimation.
* See table 4A "*".
See table 4A "".
# See table 4A "note".

Table 5A

Mean IRT Scores in Math by Academic Year, Race/Ethnicity, and Sex

	Race/		Sophomore		Senior			Effect
Sex	Ethnicity	n*	Mean	SD**	Mean	SD	Change	Size#
Total		9810	14.8	9.0	16.8	9.8	2.0	.2
	Hispanic	1247	9.8	7.5	11.8	8.7	2.0	.3
	Mexican	760	9.5	7.3	11.1	8.1	1.6	.2
	Cuban	165	13.7	8.5	17.2	9.5	3.4	.4
	Puerto Rican	151	8.5	6.6	10.5	9.3	2.1	.3
	Other Hispanic	170	10.3	7.7	12.7	8.9	2.4	.3
	Black	1326	8.3	6.9	10.3	8.1	2.0	.3
	White	7238	15.9	8.8	17.9	9.7	2.0	.2
Male		4745	15.2	9.3	17.6	10.2	2.4	.3
	Hispanic	568	10.5	7.6	12.8	9.2	2.3	.3
	Mexican	347	10.4	7.4	12.3	8.4	1.9	.3
	Cuban	62	17.0	8.1	19.5	10.7	2.5	.3
	Puerto Rican	74	9.1	7.1	11.8	9.9	2.7	.4
	Other Hispanic	85	10.1	7.7	13.1	9.5	3.0	.4
	Black	643	8.3	7.3	10.6	8.7	2.4	.3
	White	3534	16.3	9.2	18.7	10.0	2.4	.3
Female		5065	14.4	8.6	16.1	9.4	1.7	.2
	Hispanic	678	9.2	7.3	10.8	8.0	1.7	.2
	Mexican	413	8.6	7.1	10.0	7.7	1.4	.2
	Cuban	103	11.6	8.1	15.7	8.3	4.0	.5
	Puerto Rican	77	7.6	5.8	8.8	8.1	1.2	.2
	Other Hispanic	85	10.4	7.7	12.2	8.1	1.8	.2
	Black	683	8.3	6.6	9.9	7.5	1.6	.2
	White	3704	15.5	8.4	17.1	9.2	1.7	.2

a - Sample size too small for reliable estimation.
* The number of cases in each analysis varied according to the response rate on the variable analyzed.

**SD - Standard Deviation.

Note#: Effect size is computed with the following general formula $(\bar{X}_1 - \bar{X}_2)/SD_1$ where $\bar{X}_1$ and SD_1, refer to sophomore year mean test score and standard deviation and $\bar{X}_2$ refer to senior year mean test score.

Table 5B

Mean IRT Scores in Math by Academic Year, Race/Ethnicity, and SES

SES	Race/		Sophomore		Senior			Effect
Quartile	Ethnicity	n*	Mean	SD**	Mean	SD	Change	Size#
Lowest		2308	9.9	7.5	11.4	8.2	1.4	.2
	Hispanic	585	8.4	6.9	9.8	7.9	1.4	.2
	Mexican	408	8.8	7.2	9.7	7.7	1.0	.1
	Cuban	40	10.7	9.0	13.8	9.0	3.1	.3
	Puerto Rican	91	8.1	6.1	9.7	8.7	1.6	.3
	Other Hispanic	45	6.3	5.2	8.8	7.1	2.5	.5
	Black	492	7.3	6.4	8.8	7.2	1.6	.2
	White	1231	11.0	7.7	12.4	8.4	1.4	.2
Second		2375	13.7	8.2	15.4	9.0	1.7	.2
	Hispanic	264	8.8	6.7	10.9	7.9	2.1	.3
	Mexican	162	9.4	6.8	11.0	7.1	1.7	.2
	Cuban	36	13.6	7.8	17.6	11.0	4.1	.5
	Puerto Rican	29	a	a	a	a	a	a
	Other Hispanic	37	7.5	5.7	9.8	6.9	2.3	.4
	Black	323	8.8	6.5	10.7	7.6	1.9	.3
	White	1788	14.5	8.1	16.1	8.9	1.7	.2
Third		2352	16.0	8.7	18.0	9.4	2.0	.2
	Hispanic	215	11.0	7.4	14.2	9.0	3.3	.4
	Mexican	116	10.1	7.3	13.2	8.5	3.1	.4
	Cuban	40	13.4	4.6	16.5	8.5	3.1	.7
	Puerto Rican	19	a	a	a	a	a	a
	Other Hispanic	41	12.2	7.6	16.0	9.4	3.7	.5
	Black	285	9.2	7.7	11.9	9.2	2.7	.4
	White	1852	16.7	8.6	18.6	9.2	1.9	.2
Highest		2697	18.8	8.8	21.5	9.5	2.8	.3
	Hispanic	172	15.2	8.1	17.4	8.9	2.2	.3
	Mexican	65	13.0	7.9	15.6	8.9	2.6	.3
	Cuban	49	18.0	9.0	21.6	7.5	3.7	.4
	Puerto Rican	11	a	a	a	a	a	a
	Other Hispanic	47	18.2	7.0	19.1	8.3	.9	.1
	Black	200	11.0	7.9	13.3	9.2	2.3	.3
	White	2325	19.2	8.6	22.0	9.3	2.8	.3

a - Sample size too small for reliable estimation.
* See table 5A "*".
See table 5A "".
# See table 5A "note".

Table 5C

Mean IRT Scores in Math by Academmic Year, Race/Ethnicity and Home Language

Home Language	Race/ Ethnicity	n*	Sophomore		Senior		Change	Effect Size#
			Mean	SD**	Mean	SD		
Non Engl Dominant		729	10.4	7.4	12.5	8.9	2.2	.3
	Hispanic	606	9.0	6.9	10.9	8.2	2.0	.3
	Mexican	340	7.9	6.2	9.7	7.3	1.8	.3
	Cuban	127	12.9	8.0	16.2	8.9	3.2	.4
	Puerto Rican	92	7.8	6.7	9.7	9.0	1.9	.3
	Other Hispanic	47	13.7	6.0	15.1	7.8	1.5	.2
	Black	9	a	a	a	a	a	a
	White	114	13.3	7.6	15.8	9.4	2.5	.3
English Dominant		1050	16.9	8.9	18.8	10.0	1.9	.2
	Hispanic	399	12.5	8.3	13.9	9.2	1.5	.2
	Mexican	304	11.8	8.3	13.1	8.8	1.3	.2
	Cuban	23	a	a	a	a	a	a
	Puerto Rican	33	11.8	6.0	14.0	9.1	2.2	.4
	Other Hispanic	38	14.5	8.5	15.7	8.8	1.3	.1
	Black	54	13.5	6.9	15.6	8.3	2.1	.3
	White	598	17.8	8.8	19.8	9.9	2.0	.2
English Monoling		7995	14.7	8.9	16.7	9.8	2.0	.2
	Hispanic	232	8.7	7.0	11.2	8.6	2.5	.4
	Mexican	109	8.8	6.6	10.8	7.7	2.0	.3
	Cuban	15	a	a	a	a	a	a
	Puerto Rican	26	a	a	a	a	a	a
	Other Hispanic	83	8.8	7.4	11.6	8.9	2.8	.4
	Black	1260	8.2	6.9	10.1	8.0	2.0	.3
	White	6503	15.7	8.8	17.7	9.6	2.0	.2

a - Sample size too small for reliable estimation.
* See table 5A "*".
See table 5A "".
# See table 5A "note".

Table 5D

Mean IRT Scores Math by Academic Year,
Race/Ethnicity and English Proficiency

Speak/ Understand English	Race/ Ethnicity	n*	Sophomore		Senior		Change	Effect Size#
			Mean	SD**	Mean	SD		
NOT AT ALL		2	a	a	a	a	a	a
	Hispanic	0	.0	.0	.0	.0	.0	.0
	Mexican	0	.0	.0	.0	.0	.0	.0
	Cuban	0	.0	.0	.0	.0	.0	.0
	Puerto Rican	0	.0	.0	.0	.0	.0	.0
	Other Hispanic	0	.0	.0	.0	.0	.0	.0
	Black	0	.0	.0	.0	.0	.0	.0
	White	2	a	a	a	a	a	a
NOT VERY WELL		8	a	a	a	a	a	a
	Hispanic	7	a	a	a	a	a	a
	Mexican	4	a	a	a	a	a	a
	Cuban	0	.0	.0	.0	.0	.0	.0
	Puerto Rican	2	a	a	a	a	a	a
	Other Hispanic	1	a	a	a	a	a	a
	Black	1	a	a	a	a	a	a
	White	0	.0	.0	.0	.0	.0	.0
PRETTY WELL		191	9.4	6.6	10.9	7.6	1.5	.2
	Hispanic	151	8.6	6.5	9.7	6.8	1.1	.2
	Mexican	108	8.5	6.3	9.6	6.7	1.1	.2
	Cuban	19	a	a	a	a	a	a
	Puerto Rican	14	a	a	a	a	a	a
	Other Hispanic	11	a	a	a	a	a	a
	Black	4	a	a	a	a	a	a
	White	36	10.3	6.5	12.4	8.0	2.0	.3
VERY WELL		1683	15.8	9.0	17.8	10.1	2.0	.2
	Hispanic	879	10.8	7.8	12.7	8.9	2.0	.3
	Mexican	551	10.0	7.7	11.7	8.4	1.7	.2
	Cuban	136	14.7	8.6	18.4	9.5	3.7	.4
	Puerto Rican	113	9.4	6.8	11.7	9.5	2.2	.3
	Other Hispanic	80	13.9	7.1	15.7	7.8	1.8	.3
	Black	74	11.0	7.5	12.1	8.3	1.1	.1
	White	730	17.7	8.7	19.7	9.9	2.0	.2

a - Sample size too small for reliable estimation.
* See table 5A "*".
See table 5A "".
# See table 5A "note".

Table 5E

Mean IRT Scores in Math by Academic Year, Race/Ethnicity and Spanish Proficiency

Speak/ Understand Spanish	Race/ Ethnicity	n*	Sophomore		Senior		Change	Effect Size#
			Mean	SD**	Mean	SD		
NOT AT ALL		90	14.7	8.5	15.5	9.9	.8	.1
	Hispanic	12	a	a	a	a	a	a
	Mexican	9	a	a	a	a	a	a
	Cuban	0	.0	.0	.0	.0	.0	.0
	Puerto Rican	2	a	a	a	a	a	a
	Other Hispanic	1	a	a	a	a	a	a
	Black	4	a	a	a	a	a	a
	White	74	14.6	8.5	16.0	9.7	1.3	.2
NOT VERY WELL		370	17.0	8.7	18.3	9.5	1.3	.1
	Hispanic	91	13.0	8.1	14.0	8.5	1.0	.1
	Mexican	68	13.3	8.2	14.4	8.1	1.2	.1
	Cuban	1	a	a	a	a	a	a
	Puerto Rican	9	a	a	a	a	a	a
	Other Hispanic	13	a	a	a	a	a	a
	Black	19	a	a	a	a	a	a
	White	260	17.8	8.6	19.1	9.4	1.4	.2
PRETTY WELL		770	15.4	9.2	18.0	10.1	2.6	.3
	Hispanic	428	9.5	7.1	11.9	8.4	2.3	.3
	Mexican	309	8.9	6.9	11.2	8.1	2.3	.3
	Cuban	47	13.4	6.4	18.3	9.5	4.8	.8
	Puerto Rican	47	8.4	5.9	10.1	7.6	1.7	.3
	Other Hispanic	25	a	a	a	a	a	a
	Black	42	9.9	7.5	11.8	8.2	1.9	.3
	White	299	18.3	8.8	21.0	9.5	2.8	.3
VERY WELL		668	12.7	8.6	14.6	10.5	2.0	.2
	Hispanic	511	10.3	7.7	12.1	8.8	1.8	.2
	Mexican	279	8.8	7.1	10.2	7.8	1.4	.2
	Cuban	106	14.4	9.4	17.3	9.2	2.9	.3
	Puerto Rican	71	9.2	7.2	11.6	10.4	2.4	.3
	Other Hispanic	54	13.7	6.5	15.4	7.4	1.6	.2
	Black	16	a	a	a	a	a	a
	White	141	15.6	8.7	17.7	11.5	2.1	.2

a - Sample size too small for reliable estimation.
* See table 5A "*".
See table 5A "".
# See table 5A "note".

Table 5F

Mean IRT Scores in Math by Academic Year, Race/Ethnicity and Country of Origin

Country of Origin	Race/ Ethnicity	n*	Sophomore Mean	SD**	Senior Mean	SD	Change	Effect Size#
USA		9295	14.9	8.9	16.9	9.8	2.0	.2
	Hispanic	1013	9.6	7.5	11.5	8.6	1.9	.2
	Mexican	672	9.6	7.5	11.3	8.2	1.7	.2
	Cuban	89	15.1	8.5	17.9	9.4	2.9	.3
	Puerto Rican	125	7.6	6.1	9.6	8.8	2.0	.3
	Other Hispanic	128	9.8	7.8	11.8	8.7	2.0	.3
	Black	1246	8.3	6.9	10.3	8.0	2.0	.3
	White	7036	15.9	8.8	18.0	9.6	2.0	.2
OUTSIDE USA		428	12.8	8.8	14.4	9.6	1.6	.2
	Hispanic	222	10.6	7.3	13.1	8.9	2.4	.3
	Mexican	82	7.7	5.8	9.1	7.1	1.3	.2
	Cuban	74	12.9	8.3	16.6	9.6	3.7	.4
	Puerto Rican	27	11.6	7.3	13.8	10.3	2.2	.3
	Other Hispanic	40	13.2	6.9	16.5	6.9	3.3	.5
	Black	56	10.1	7.2	13.1	9.2	3.0	.4
	White	150	14.2	9.3	15.2	9.8	1.0	.1

* See table 5A "*".
See table 5A "".
# See table 5A "note".

Table 5G

Mean IRT Scoes in Math by Academic Year,
Race/Ethnicity and Length of Residence

Length of Residence	Race/ Ethnicity	n*	Sophomore Mean	Sophomore SD**	Senior Mean	Senior SD	Change	Effect Size#
1 to 5 Years		208	12.9	9.1	16.0	10.5	3.1	.3
	Hispanic	107	9.2	7.3	12.6	9.5	3.4	.5
	Mexican	34	7.6	5.2	9.4	7.8	1.8	.3
	Cuban	25	a	a	a	a	a	a
	Puerto Rican	15	a	a	a	a	a	a
	Other Hispanic	27	a	a	a	a	a	a
	Black	24	6.4	5.8	9.8	7.6	3.4	.6
	White	47	16.6	8.8	19.6	10.3	3.0	.3
6 to 10 Years		268	12.9	8.8	15.2	9.9	2.3	.3
	Hispanic	85	11.3	7.6	12.4	8.4	1.0	.1
	Mexican	29	a	a	a	a	a	a
	Cuban	34	15.0	9.2	18.1	9.4	3.2	.3
	Puerto Rican	12	a	a	a	a	a	a
	Other Hispanic	10	a	a	a	a	a	a
	Black	32	7.5	6.2	8.3	7.2	.8	.1
	White	152	13.9	9.0	16.7	9.9	2.8	.3
11 or More		9252	14.9	8.9	16.9	9.8	2.0	.2
	Hispanic	1051	9.8	7.5	11.7	8.6	1.9	.3
	Mexican	689	9.6	7.5	11.3	8.2	1.7	.2
	Cuban	105	14.5	8.1	17.8	9.4	3.3	.4
	Puerto Rican	124	7.8	5.9	10.0	8.8	2.2	.4
	Other Hispanic	133	10.2	7.7	12.1	8.6	2.0	.3
	Black	1236	8.4	7.0	10.3	8.1	1.9	.3
	White	6966	15.9	8.8	17.9	9.6	2.0	.2

a - Sample size too small for reliable estimation.
* See table 5A "*".
See table 5A "".
# See table 5A "note".

Table 5H

Mean IRT Scores in Math by Academic Year, Race/Ethnicity, and Carnegie Units in the New Basics

Carnegie Units in the Basics	Race/ Ethnicity		Sophomore		Senior			Effect
		n*	Mean	SD**	Mean	SD	Change	Size#
Lowest		1606	9.2	7.1	10.1	7.4	.8	.1
	Hispanic	208	6.6	6.0	8.1	7.3	1.6	.3
	Mexican	117	6.3	5.5	7.1	5.8	.9	.2
	Cuban	29	9.9	8.3	12.3	8.5	2.4	.3
	Puerto Rican	38	6.6	5.9	6.7	7.1	.1	0
	Other Hispanic	25	a	a	a	a	a	a
	Black	215	5.5	5.2	6.5	5.8	.9	.2
	White	1183	9.9	7.2	10.6	7.5	.7	.1
Second		2539	12.1	7.7	13.1	8.2	1.0	.1
	Hispanic	360	8.6	6.2	9.7	7.8	1.2	.2
	Mexican	239	8.6	5.9	9.9	6.9	1.3	.2
	Cuban	25	a	a	a	a	a	a
	Puerto Rican	50	8.1	5.6	9.4	8.9	1.2	.2
	Other Hispanic	46	8.5	6.6	9.0	8.8	.5	.1
	Black	368	6.7	5.4	7.8	6.5	1.1	.2
	White	1811	13.0	7.7	14.1	8.0	1.0	.1
Third		2459	14.9	8.2	17.2	8.8	2.3	.3
	Hispanic	355	10.5	7.2	12.2	7.6	1.7	.2
	Mexican	241	10.1	7.5	11.3	7.8	1.2	.2
	Cuban	49	13.3	5.8	16.5	7.1	3.2	.6
	Puerto Rican	27	a	a	a	a	a	a
	Other Hispanic	39	11.7	6.0	14.5	6.1	2.8	.5
	Black	352	8.4	6.9	10.4	7.6	2.1	.3
	White	1752	16.1	7.9	18.4	8.5	2.3	.3
Highest		3206	20.3	8.5	23.7	8.6	3.4	.4
	Hispanic	324	14.1	8.8	18.2	8.8	4.1	.5
	Mexican	163	13.5	8.8	17.3	8.9	3.8	.4
	Cuban	63	18.2	7.8	22.3	8.9	4.1	.5
	Puerto Rican	27	12.2	7.4	18.9	8.5	6.7	.9
	Other Hispanic	39	14.6	9.2	17.9	7.9	3.4	.4
	Black	352	12.5	7.9	16.3	8.6	3.8	.5
	White	1752	21.2	8.1	24.5	8.2	3.3	.4

a - Sample size too small for reliable estimation.
* See table 5A "*".
See table 5A "".
# See table 5A "note".

Table 5I

Mean IRT Scores in Math by Academic Year, Race/Ethnicity and Educational Aspiration

Post Sec Educ Plans	Race/ Ethnicity	n*	Sophomore		Senior		Change	Effect Size#
			Mean	SD**	Mean	SD		
HS ONLY		1703	9.3	7.0	9.9	7.1	.6	.1
	Hispanic	231	6.2	5.0	7.3	6.4	1.1	.2
	Mexican	175	5.8	4.6	6.7	5.7	1.0	.2
	Cuban	9	a	a	a	a	a	a
	Puerto Rican	30	6.1	3.3	6.6	6.3	.5	.1
	Other Hispanic	17	a	a	a	a	a	a
	Black	151	5.4	5.2	6.2	5.6	.8	.1
	White	1321	9.9	7.1	10.5	7.1	.5	.1
SOME COLLEGE		1709	11.4	7.5	12.6	7.9	1.2	.2
	Hispanic	208	8.5	6.6	9.5	7.6	1.0	.2
	Mexican	132	9.9	6.8	9.8	6.5	-.1	.0
	Cuban	17	a	a	a	a	a	a
	Puerto Rican	30	4.9	4.6	6.2	6.6	1.3	.3
	Other Hispanic	29	a	a	a	a	a	a
	Black	225	6.7	5.2	7.9	6.1	1.2	.2
	White	1276	12.2	7.5	13.3	7.9	1.1	.2
COLLEGE		1715	13.8	8.1	15.5	8.5	1.8	.2
	Hispanic	250	9.7	7.2	10.8	7.3	1.2	.2
	Mexican	163	9.0	6.5	10.4	6.2	1.3	.2
	Cuban	25						a
	Puerto Rican	31	8.4	6.6	9.4	8.0	1.0	.2
	Other Hispanic	32	10.4	7.6	11.6	8.4	1.2	.2
	Black	250	6.8	5.8	8.5	7.0	1.7	.3
	White	1216	15.0	7.8	16.9	8.1	1.8	.2
COLLEGE AND BEYOND		4650	19.2	8.6	22.3	9.0	3.1	.4
	Hispanic	549	13.1	8.2	16.7	9.0	3.6	.4
	Mexican	284	12.5	8.3	15.9	9.1	3.4	.4
	Cuban	114	14.2	7.7	19.0	9.0	4.9	.6
	Puerto Rican	59	11.9	7.3	15.9	10.1	4.0	.5
	Other Hispanic	92	14.3	8.3	17.6	7.8	3.3	.4
	Black	693	10.8	7.8	13.6	8.8	2.8	.4
	White	3408	20.5	7.9	23.6	8.4	3.1	.4

a - Sample size too small for reliable estimation.
* See table 5A "*".
See table 5A "".
# See table 5A "note".

Table 6A

Mean IRT Scores in Science by Academic Year, Race/Ethnicity, and Sex

Sex	Race/ Ethnicity	n*	Sophomore Mean	Sophomore SD**	Senior Mean	Senior SD	Change	Effect Size#
Total		10682	9.4	4.2	10.3	4.3	.9	.2
	Hispanic	1433	6.8	3.9	7.7	4.2	.9	.2
	Mexican	888	6.4	3.8	7.3	4.1	.9	.2
	Cuban	165	7.8	4.9	9.1	5.1	1.4	.3
	Puerto Rican	188	6.4	3.9	7.1	4.6	.8	.2
	Other Hispanic	191	7.7	3.6	8.6	3.7	.9	.3
	Black	1583	5.8	3.6	6.4	3.8	.7	.2
	White	7666	10.1	4.0	11.0	4.0	.9	.2
Male		5187	10.1	4.3	11.1	4.3	1.0	.2
	Hispanic	666	7.5	4.0	8.6	4.1	1.1	.3
	Mexican	414	7.1	3.9	8.2	4.0	1.1	.3
	Cuban	65	8.9	5.4	10.3	5.8	1.4	.3
	Puerto Rican	91	7.7	4.1	8.8	4.8	1.1	.3
	Other Hispanic	97	8.0	3.5	9.2	3.1	1.2	.3
	Black	767	6.6	3.8	7.3	3.9	.7	.2
	White	3754	10.7	4.1	11.8	4.1	1.1	.3
Female		5495	8.8	4.1	9.6	4.2	.8	.2
	Hispanic	766	6.1	3.6	6.7	4.1	.6	.2
	Mexican	475	5.7	3.5	6.4	4.0	.6	.2
	Cuban	100	6.8	4.3	8.2	4.2	1.4	.3
	Puerto Rican	97	4.9	3.1	5.3	3.6	.4	.1
	Other Hispanic	94	7.4	3.7	8.0	4.1	.6	.2
	Black	816	5.1	3.2	5.7	3.5	.6	.2
	White	3912	9.5	3.8	10.3	3.9	.8	.2

* The number of cases in each analysis varied according to the response rate on the variable analyzed.

**SD - Standard Deviation.

Note#: Effect size is computed with the following general formula $(\bar{X}_1 - \bar{X}_2)/SD_1$ where $\bar{X}_1$ and SD_1, refer to sophomore year mean test score and standard deviation and $\bar{X}_2$ refer to senior year mean test score.

Table 6B

Mean IRT Scores in Scienc by Academic Year, Race/Ethnicity, and Ses

SES	Race/		Sophomore		Senior			Effect
Quartile	Ethnicity	n*	Mean	SD**	Mean	SD	Change	Size#
Lowest		2723	7.4	3.9	8.1	4.0	.7	.2
	Hispanic	702	5.9	3.3	6.9	3.9	1.0	.3
	Mexican	493	5.8	3.4	6.7	3.8	.9	.3
	Cuban	41	6.3	4.2	7.5	4.7	1.2	.3
	Puerto Rican	113	5.8	3.6	6.9	4.4	1.1	.3
	Other Hispanic	54	6.3	2.1	7.9	2.7	1.7	.8
	Black	605	5.3	3.1	5.9	3.6	.6	.2
	White	1416	8.3	3.9	9.0	3.9	.7	.2
Second		2620	9.1	4.0	9.9	4.1	.9	.2
	Hispanic	310	6.6	3.9	7.5	4.0	.9	.2
	Mexican	195	6.4	3.7	7.6	3.6	1.2	.3
	Cuban	37	8.0	5.2	9.6	5.4	1.7	.3
	Puerto Rican	36	5.4	3.0	6.1	4.1	.7	.2
	Other Hispanic	42	7.1	4.0	7.4	3.9	.3	.1
	Black	396	5.7	3.3	6.5	3.7	.9	.3
	White	1914	9.7	3.8	10.5	3.9	.9	.2
Third		2485	9.9	4.0	10.9	4.1	1.0	.3
	Hispanic	231	8.2	3.8	8.8	4.2	.6	.2
	Mexican	121	7.8	3.9	8.3	4.5	.5	.1
	Cuban	42	8.6	4.6	9.4	4.7	.8	.2
	Puerto Rican	22	a	a	a	a	a	a
	Other Hispanic	47	8.6	3.3	9.3	3.2	.7	.2
	Black	324	6.4	4.0	6.9	4.0	.6	.1
	White	1929	10.3	3.9	11.4	3.9	1.1	.3
Highest		2740	11.3	3.9	12.3	3.9	1.0	.3
	Hispanic	171	9.3	4.3	10.1	4.6	.8	.2
	Mexican	68	8.5	4.4	9.2	4.6	.7	.2
	Cuban	44	9.7	4.7	11.5	4.7	1.7	.4
	Puerto Rican	12	a	a	a	a	a	a
	Other Hispanic	48	10.1	3.8	11.0	4.1	.9	.2
	Black	217	7.4	4.4	8.1	4.1	.7	.2
	White	2351	11.5	3.8	12.5	3.7	1.0	.3

a - Sample size too small for reliable estimation.
* See table 6A "*".
See table 6A "".
# See table 6A "note".

Table 6D

Mean IRT Scores in Science by Academic Year, Race/Ethnicity and English Proficiency

Speak/ Understand English	Race/ Ethnicity	n*	Sophomore Mean	SD**	Senior Mean	SD	Change	Effect Size#
NOT AT ALL		2	a	a	a	a	a	a
	Hispanic	0	.0	.0	.0	.0	.0	.0
	Mexican	0	.0	.0	.0	.0	.0	.0
	Cuban	0	.0	.0	.0	.0	.0	.0
	Puerto Rican	0	.0	.0	.0	.0	.0	.0
	Other Hispanic	0	.0	.0	.0	.0	.0	.0
	Black	0	.0	.0	.0	.0	.0	.0
	White	2	a	a	a	a	a	a
NOT VERY WELL		11	a	a	a	a	a	a
	Hispanic	10	a	a	a	a	a	a
	Mexican	7	a	a	a	a	a	a
	Cuban	0	.0	.0	.0	.0	.0	.0
	Puerto Rican	2	a	a	a	a	a	a
	Other Hispanic	1	a	a	a	a	a	a
	Black	1	a	a	a	a	a	a
	White	0	.0	.0	.0	.0	.0	.0
PRETTY WELL		224	6.8	3.5	7.6	3.8	.8	.2
	Hispanic	179	6.0	3.2	6.7	3.7	.6	.2
	Mexican	129	5.9	3.2	6.4	3.4	.5	.2
	Cuban	19	a	a	a	a	a	a
	Puerto Rican	18	a	a	a	a	a	a
	Other Hispanic	13	a	a	a	a	a	a
	Black	5	a	a	a	a	a	a
	White	41	8.0	3.6	8.9	3.7	.9	.3
VERY WELL		1802	9.6	4.2	10.7	4.4	1.1	.2
	Hispanic	971	7.2	3.8	8.2	1.3	1.0	.3
	Mexican	615	6.7	3.6	7.7	4.2	1.0	.3
	Cuban	133	9.0	4.7	10.3	5.1	1.3	.3
	Puerto Rican	132	7.2	3.8	8.3	4.4	1.1	.3
	Other Hispanic	91	8.2	3.9	9.2	4.1	1.0	.3
	Black	78	7.4	4.1	8.2	4.0	.8	.2
	White	753	10.7	3.9	11.7	3.9	1.1	.3

a - Sample size too small for reliable estimation.
* See table 6A "*".
See table 6A "".
# See table 6A "note".

Table 6E

Mean IRT Scores in Sciene by Academic Year, Race/Ethnicity and Spanish Proficiency

Speak/ Understand Spanish	Race/ Ethnicity	n*	Sophomore		Senior		Change	Effect Size#
			Mean	SD**	Mean	SD		
NOT AT ALL		94	9.2	4.2	10.5	4.2	1.3	.3
	Hispanic	14	a	a	a	a	a	a
	Mexican	11	a	a	a	a	a	a
	Cuban	0	.0	.0	.0	.0	.0	.0
	Puerto Rican	2	a	a	a	a	a	a
	Other Hispanic	1	a	a	a	a	a	a
	Black	5	a	a	a	a	a	a
	White	75	9.2	4.3	10.8	4.0	1.6	.4
NOT VERY WELL		395	10.2	3.9	11.2	4.0	1.0	.2
	Hispanic	111	7.3	4.1	8.5	4.6	1.2	.3
	Mexican	77	7.5	3.6	8.8	4.5	1.4	.4
	Cuban	1	a	a	a	a	a	a
	Puerto Rican	13	a	a	a	a	a	a
	Other Hispanic	20	a	a	a	a	a	a
	Black	21	a	a	a	a	a	a
	White	263	10.9	3.5	11.8	3.6	1.0	.3
PRETTY WELL		823	9.5	4.3	10.8	4.5	1.2	.3
	Hispanic	469	6.8	3.7	7.8	4.1	1.0	.3
	Mexican	345	6.4	3.5	7.3	3.8	.9	.3
	Cuban	45	8.8	4.8	10.6	5.0	1.8	.4
	Puerto Rican	53	6.6	3.4	7.9	4.2	1.3	.4
	Other Hispanic	26	a	a	a	a	a	a
	Black	44	7.5	3.7	8.7	3.5	1.2	.3
	White	309	11.0	3.9	12.3	4.0	1.4	.3
VERY WELL		743	7.8	4.3	8.6	4.4	.8	.2
	Hispanic	570	6.8	3.7	7.7	4.3	1.0	.3
	Mexican	319	6.2	3.6	7.0	4.0	.8	.2
	Cuban	104	8.3	4.5	9.4	4.8	1.1	.2
	Puerto Rican	87	6.8	3.5	7.7	4.8	.8	.2
	Other Hispanic	59	8.0	3.1	9.7	3.5	1.7	.5
	Black	17	a	a	a	a	a	a
	White	156	9.2	4.5	9.7	4.4	.5	.1

a - Sample size too small for reliable estimation.
* See table 6A "*".
See table 6A "".
# See table 6A "note".

Table 6G

Mean IRT Scores in Science by Academic Year, Race/Ethnicity and Length of Residence

Length of Residence	Race/ Ethnicity	n*	Sophomore		Senior		Change	Effect Size#
			Mean	SD**	Mean	SD		
1 to 5 Years		247	7.6	4.2	8.6	4.8	.9	.2
	Hispanic	122	6.3	3.6	6.7	4.6	.5	.1
	Mexican	46	5.6	3.3	5.3	3.5	-.3	-.1
	Cuban	23	a	a	a	a	a	a
	Puerto Rican	27	a	a	a	a	a	a
	Other Hispanic	27	a	a	a	a	a	a
	Black	42	5.2	3.6	5.8	4.1	.6	.2
	White	83	9.2	4.1	10.6	4.3	1.3	.3
6 to 10 Years		303	8.7	4.5	9.2	4.8	.6	.1
	Hispanic	88	7.3	4.1	8.4	4.7	1.1	.3
	Mexican	28	a	a	a	a	a	a
	Cuban	35	8.1	3.9	9.5	4.7	1.4	.4
	Puerto Rican	14	a	a	a	a	a	a
	Other Hispanic	11	a	a	a	a	a	a
	Black	50	5.0	3.4	5.0	4.0	.1	.0
	White	166	9.7	4.3	10.2	4.5	.5	.1
11 or More		10027	9.5	4.2	10.4	4.3	.9	.2
	Hispanic	1208	6.8	3.9	7.7	4.1	.9	.2
	Mexican	805	6.4	3.8	7.4	4.0	.9	.2
	Cuban	106	8.0	5.3	9.5	5.3	1.4	.3
	Puerto Rican	144	6.1	3.8	6.9	4.3	.8	.2
	Other Hispanic	153	7.9	3.6	8.5	3.6	.6	.2
	Black	1455	5.8	3.6	6.5	3.8	.7	.2
	White	7364	10.1	4.0	11.1	4.0	.9	.2

a - Sample size too small for reliable estimation.
* See table 6A "*".
See table 6A "".
# See table 6A "note".

Table 6H

Mean IRT Scores in Science by Academic Year, Race/Ethnicity, and Carnegie Units in the New Basics

Carnegie Units in the New Basics	Race/ Ethnicity	n*	Sophomore Mean	Sophomore SD**	Senior Mean	Senior SD	Change	Effect Size#
Lowest		2018	7.4	3.8	8.2	3.9	.8	.2
	Hispanic	281	5.1	3.3	6.3	3.7	1.2	.4
	Mexican	167	4.8	3.2	5.7	3.5	1.0	.3
	Cuban	26	a	a	a	a	a	a
	Puerto Rican	54	5.1	3.2	5.8	3.2	.7	.2
	Other Hispanic	34	5.7	3.0	7.6	3.6	1.9	.7
	Black	314	4.7	2.9	5.3	3.3	.6	.2
	White	1422	8.0	3.8	8.9	3.8	.9	.2
Second		2848	8.5	3.9	9.3	4.1	.8	.2
	Hispanic	423	6.8	3.7	7.2	3.8	.4	.1
	Mexican	284	6.6	3.7	6.9	3.8	.3	.1
	Cuban	26	a	a	a	a	a	a
	Puerto Rican	58	6.2	3.8	6.6	4.3	.4	.1
	Other Hispanic	55	7.9	3.1	8.2	3.4	.3	.1
	Black	460	5.3	3.2	5.8	3.6	.4	.1
	White	1965	9.2	3.7	10.0	3.8	.8	.2
Third		2597	9.5	4.0	10.4	4.1	.9	.2
	Hispanic	392	7.2	3.7	8.0	4.0	.8	.2
	Mexican	267	6.7	3.6	7.8	3.8	1.1	.3
	Cuban	47	7.0	3.7	8.6	3.9	1.6	.4
	Puerto Rican	38	5.7	3.8	5.5	4.4	-.1	.0
	Other Hispanic	40	9.1	3.0	9.6	3.3	.5	.2
	Black	403	5.7	3.4	6.5	3.5	.9	.3
	White	1802	10.3	3.7	11.2	3.8	.9	.2
Highest		3219	11.6	4.0	12.7	3.9	1.1	.3
	Hispanic	336	8.7	4.2	10.1	4.5	1.5	.3
	Mexican	169	8.1	4.0	9.6	4.7	1.5	.4
	Cuban	67	10.6	4.2	11.3	4.7	.6	.1
	Puerto Rican	37	9.8	3.5	12.6	3.6	2.8	.8
	Other Hispanic	63	8.4	4.4	9.6	4.0	1.2	.3
	Black	406	7.6	4.2	8.5	4.1	.8	.2
	White	2477	12.1	3.7	13.2	3.5	1.1	.3

a - Sample size too small for reliable estimation.
* See table 6A "*".
See table 6A "".
# See table 6A "note".

Table 6I

Mean IRT Scores in Science by Academic Year, Race/Ethnicity and Educational Aspiration

Post Sec Educ Plans	Race/ Ethnicity	n*	Sophomore Mean	Sophomore SD**	Senior Mean	Senior SD	Change	Effect Size#
HS ONLY		2129	7.2	3.7	8.0	3.9	.8	.2
	Hispanic	311	5.0	3.2	5.7	3.3	.7	.2
	Mexican	231	4.6	3.1	5.3	3.2	.7	.2
	Cuban	11	a	a	a	a	a	a
	Puerto Rican	46	4.5	3.0	4.7	3.0	.3	.1
	Other Hispanic	24	a	a	a	a	a	a
	Black	231	4.6	2.8	4.9	3.1	.3	.1
	White	1587	7.7	3.7	8.6	3.7	.8	.2
SOME COLLEGE		1937	8.4	3.8	9.2	3.8	.7	.2
	Hispanic	255	6.4	3.6	7.4	3.6	1.0	.3
	Mexican	165	6.5	3.4	7.3	3.5	.8	.2
	Cuban	19	a	a	a	a	a	a
	Puerto Rican	35	5.8	3.5	6.6	3.8	.8	.2
	Other Hispanic	35	6.7	3.8	7.9	3.4	1.2	.3
	Black	291	5.1	3.0	5.8	3.2	.7	.2
	White	1391	9.1	3.6	9.8	3.6	.7	.2
COLLEGE		1856	9.1	4.0	9.9	4.1	.9	.2
	Hispanic	296	6.7	3.7	7.7	4.1	.9	.3
	Mexican	189	6.6	3.7	7.5	3.8	.9	.2
	Cuban	27	a		a		a	a
	Puerto Rican	42	5.7	3.0	7.0	3.7	1.2	.4
	Other Hispanic	38	7.2	3.6	7.8	4.2	.6	.2
	Black	298	5.1	3.1	6.0	3.6	.8	.3
	White	1261	9.9	3.8	10.8	3.7	.9	.2
COLLEGE AND BEYOND		4708	11.3	4.0	12.3	4.0	1.1	.3
	Hispanic	558	8.7	3.9	9.7	4.5	1.0	.3
	Mexican	296	8.2	3.8	9.2	4.5	1.1	.3
	Cuban	108	9.2	4.7	10.3	4.7	1.1	.2
	Puerto Rican	62	9.0	4.0	9.9	5.3	.9	.2
	Other Hispanic	93	9.4	3.4	10.2	3.7	.8	.2
	Black	750	7.0	4.0	7.7	4.1	.8	.2
	White	3401	12.0	3.6	13.1	3.5	1.1	.3

a - Sample size too small for reliable estimation.
* See table 6A "*".
See table 6A "".
# See table 6A "note".

Table 7A

Mean IRT Scores in Writing by Academic Year, Race/Ethnicity, and Sex

Sex	Race/Ethnicity	n*	Sophomore		Senior		Change	Effect Size#
			Mean	SD**	Mean	SD		
Total		10054	9.5	4.5	11.1	4.4	1.6	.4
	Hispanic	1334	7.2	4.1	9.1	4.4	2.0	.5
	Mexican	833	7.3	4.0	9.1	4.1	1.9	.5
	Cuban	151	9.1	4.6	11.3	4.5	2.1	.5
	Puerto Rican	170	6.1	3.8	8.4	4.3	2.3	.6
	Other Hispanic	179	7.1	4.0	9.0	4.8	1.9	.5
	Black	1420	6.5	4.1	8.1	4.2	1.6	.4
	White	7300	10.0	4.3	11.6	4.2	1.6	.4
Male		4691	8.5	4.5	10.2	4.6	1.7	.4
	Hispanic	581	6.5	4.0	8.6	4.5	2.1	.5
	Mexican	355	6.6	3.9	8.8	4.3	2.2	.6
	Cuban	58	7.9	4.7	10.3	4.7	2.4	.5
	Puerto Rican	77	6.1	3.7	8.4	4.5	2.3	.6
	Other Hispanic	91	6.3	4.0	8.2	4.6	1.9	.5
	Black	649	5.8	4.0	7.2	4.2	1.4	.3
	White	3461	9.0	4.4	10.6	4.5	1.7	.4
Female		5363	10.3	4.2	11.9	4.0	1.6	.4
	Hispanic	752	7.8	4.1	9.6	4.3	1.8	.4
	Mexican	478	7.8	4.1	9.4	4.0	1.6	.4
	Cuban	93	10.2	4.2	12.1	4.2	1.9	.5
	Puerto Rican	93	6.1	3.9	8.5	4.2	2.4	.6
	Other Hispanic	88	8.1	3.8	10.0	4.7	1.9	.5
	Black	772	7.1	4.0	8.8	4.0	1.8	.4
	White	3839	11.0	4.0	12.5	3.7	1.5	.4

a - Sample size too small for reliable estimation.
* The number of cases in each analysis varied according to the response rate on the variable analyzed.

**SD - Standard Deviation.

Note#: Effect size is computed with the following general formula $(\bar{X}_1 - \bar{X}_2)/SD_1$ where $\bar{X}_1$ and SD_1, refer to sophomore year mean test score and standard deviation and $\bar{X}_2$ refer to senior year mean test score.

Table 7B

Mean IRT Scores in Writing by Academic Year, Race/Ethnicity, and SES

SES Quartile	Race/ Ethnicity	n*	Sophomore		Senior		Change	Effect Size#
			Mean	SD**	Mean	SD		
Lowest		2521	7.6	4.2	9.2	4.3	1.6	.4
	Hispanic	662	6.3	3.7	8.2	4.1	1.9	.5
	Mexican	474	6.7	3.9	8.5	4.0	1.8	.5
	Cuban	36	8.8	4.3	10.8	4.9	2.0	.5
	Puerto Rican	101	5.4	3.5	8.4	4.3	3.0	.9
	Other Hispanic	50	5.1	2.5	6.2	3.5	1.1	.4
	Black	551	6.0	3.8	7.5	4.0	1.5	.4
	White	1308	8.3	4.2	9.9	4.3	1.6	.4
Second		2436	9.1	4.3	10.8	4.3	1.7	.4
	Hispanic	269	7.3	4.0	9.1	4.4	1.7	.4
	Mexican	167	7.3	3.9	9.4	4.0	2.1	.5
	Cuban	31	10.9	4.0	12.5	4.7	1.6	.4
	Puerto Rican	32	7.3	4.1	8.2	4.3	.9	.2
	Other Hispanic	39	6.9	3.8	8.4	4.7	1.5	.4
	Black	350	6.7	4.1	8.3	4.3	1.6	.4
	White	1816	9.5	4.3	11.2	4.2	1.7	.4
Third		2352	10.0	4.3	11.6	4.2	1.6	.4
	Hispanic	219	8.3	4.1	10.4	4.1	2.2	.5
	Mexican	117	8.7	4.0	10.5	3.9	1.9	.5
	Cuban	37	9.4	3.6	10.5	4.0	1.1	.3
	Puerto Rican	a					a	a
	Other Hispanic	45	7.9	4.2	10.6	4.4	2.7	.6
	Black	296	6.8	4.4	8.6	4.3	1.8	.4
	White	1847	10.4	4.2	12.0	4.0	1.6	.4
Highest		2657	11.2	4.2	12.7	3.8	1.5	.4
	Hispanic	167	9.0	4.4	11.6	4.2	2.6	.6
	Mexican	65	8.9	4.4	11.4	3.9	2.5	.6
	Cuban	47	8.3	5.4	11.5	4.3	3.2	.6
	Puerto Rican	a					a	a
	Other Hispanic	45	9.7	4.0	12.4	4.1	2.7	.7
	Black	206	8.2	4.4	9.9	4.3	1.7	.4
	White	2283	11.4	4.1	12.9	3.8	1.5	.4

a - Sample size too small for reliable estimation
* See table 7A "*".
See table 7A "".
# See table 7A "note".

Table 7C

Mean IRT Scores in writing by Academic Year, Race/Ethnicity, and Home Language

Home	Race/		Sphomore		Senior			Effect
Language	Ethnicity	n*	Mean	SD**	Mean	SD	Change	Size#
Non - English Dominant		762	7.3	4.0	9.6	4.1	2.3	.6
	Hispanic	635	6.9	3.9	9.3	4.1	2.4	.6
	Mexican	364	6.7	3.7	9.0	4.0	2.3	.6
	Cuban	114	9.1	3.8	11.3	4.0	2.2	.6
	Puerto Rican	106	5.9	3.4	8.7	4.1	2.8	.8
	Other Hispanic	51	8.2	4.4	10.8	4.2	2.6	.6
	Black	8	a	a	a	a	a	a
	White	118	8.3	4.1	10.2	4.0	1.9	.5
English Dominant		1061	10.2	4.4	11.9	4.1	1.8	.4
	Hispanic	426	8.3	4.3	10.2	4.3	1.9	.4
	Mexican	327	8.1	4.2	9.9	4.1	1.9	.4
	Cuban	22	a	a	a	a	a	a
	Puerto Rican	35	8.7	3.9	10.2	3.8	1.4	.4
	Other Hispanic	43	8.0	4.6	10.6	5.0	2.5	.6
	Black	49	9.0	4.4	10.8	3.9	1.8	.4
	White	586	10.6	4.3	12.3	4.0	1.7	.4
English Monoling		8196	9.5	4.5	11.1	4.4	1.6	.4
	Hispanic	261	6.7	3.9	8.2	4.5	1.5	.4
	Mexican	134	7.1	4.1	8.4	4.0	1.3	.3
	Cuban	15	a	a	a	a	a	a
	Puerto Rican	29	a	a	a	a	a	a
	Other Hispanic	84	6.7	3.6	8.3	4.7	1.6	.4
	Black	1361	6.5	4.1	8.1	4.2	1.6	.4
	White	6574	10.0	4.3	11.6	4.2	1.6	.4

a - Sample size too small for reliable estimation
* See table 7A "*".
See table 7A "".
# See table 7A "note".

Table 7D

Mean IRT Scores in Writing by Academic Year, Race/Ethnicity and English Proficiency

Speak/ Understand English	Race/ Ethnicity	n*	Sophomore		Senior		Change	Effect Size#
			Mean	SD**	Mean	SD		
NOT AT ALL		2	a	a	a	a	a	a
	Hispanic	0	.0	.0	.0	.0	.0	.0
	Mexican	0	.0	.0	.0	.0	.0	.0
	Cuban	0	.0	.0	.0	.0	.0	.0
	Puerto Rican	0	.0	.0	.0	.0	.0	.0
	Other Hispanic	0	.0	.0	.0	.0	.0	.0
	Black	0	.0	.0	.0	.0	.0	.0
	White	2	a	a	a	a	a	a
NOT VERY WELL		7	a	a	a	a	a	a
	Hispanic	6	a	a	a	a	a	a
	Mexican	3	a	a	a	a	a	a
	Cuban	0	.0	.0	.0	.0	.0	.0
	Puerto Rican	2	a	a	a	a	a	a
	Other Hispanic	1	a	a	a	a	a	a
	Black	1	a	a	a	a	a	a
	White	0	.0	.0	.0	.0	.0	.0
PRETTY WELL		204	6.6	3.8	8.7	4.1	2.1	.6
	Hispanic	162	6.3	3.7	8.5	4.0	2.2	.6
	Mexican	119	6.5	3.7	8.6	4.0	2.1	.6
	Cuban	17	a	a	a	a	a	a
	Puerto Rican	17	a	a	a	a	a	a
	Other Hispanic	10	a	a	a	a	a	a
	Black	4	a	a	a	a	a	a
	White	38	7.1	3.9	9.2	4.1	2.1	.5
VERY WELL		1716	9.9	4.4	11.7	4.1	1.8	.4
	Hispanic	930	7.7	4.1	10.0	4.2	2.2	.5
	Mexican	591	7.5	4.0	9.6	4.1	2.1	.5
	Cuban	123	10.4	4.2	12.5	4.2	2.1	.5
	Puerto Rican	125	7.2	3.8	9.8	4.0	2.6	.7
	Other Hispanic	91	8.0	4.4	10.6	4.6	2.7	.6
	Black	65	8.1	4.9	10.3	4.0	2.2	.5
	White	721	10.8	4.1	12.4	3.9	1.6	.4

a - Sample size too small for reliable estimation.
* See table 7A "*".
See table 7A "".
# See table 7A "note".

Table 7E

Mean IRT Scores in Writing by Academis Year, Race/Ethnicity and Spanish Proficiency

Speak/ Understand Spanish	Race/ Ethnicity		Sophomore		Senior			Effect
		n*	Mean	SD**	Mean	SD	Change	Size#
NOT AT ALL		83	9.0	4.3	11.1	4.2	2.1	.5
	Hispanic	14	a	a	a	a	a	a
	Mexican	11	a	a	a	a	a	a
	Cuban	0	.0	.0	.0	.0	.0	.0
	Puerto Rican	2	a	a	a	a	a	a
	Other Hispanic	1	a	a	a	a	a	a
	Black	3	a	a	a	a	a	a
	White	66	9.1	4.3	11.3	4.2	2.2	.5
NOT VERY WELL		375	10.4	4.1	12.1	4.0	1.7	.4
	Hispanic	102	8.0	4.3	10.0	4.2	2.0	.5
	Mexican	75	8.7	3.9	10.7	3.7	2.0	.5
	Cuban	1	a	a	a	a	a	a
	Puerto Rican	11	a	a	a	a	a	a
	Other Hispanic	15	a	a	a	a	a	a
	Black	16	a	a	a	a	a	a
	White	257	10.8	3.8	12.4	3.9	1.6	.4
PRETTY WELL		778	9.8	4.4	11.6	4.1	1.9	.4
	Hispanic	437	7.5	4.1	9.8	4.0	2.3	.5
	Mexican	321	7.3	4.0	9.4	4.0	2.1	.5
	Cuban	43	10.4	4.1	12.6	4.9	2.2	.6
	Puerto Rican	45	6.8	3.6	10.0	3.0	3.2	.9
	Other Hispanic	28	a	a	a	a	a	a
	Black	39	9.3	4.2	9.7	3.9	.5	.1
	White	301	10.8	4.2	12.5	3.8	1.8	.4
VERY WELL		705	8.3	4.6	10.2	4.5	1.9	.4
	Hispanic	548	7.2	4.0	9.5	4.4	2.3	.6
	Mexican	307	6.9	3.9	8.9	4.2	2.0	.5
	Cuban	94	9.9	4.1	12.0	3.7	2.1	.5
	Puerto Rican	87	6.5	3.8	8.9	4.6	2.4	.6
	Other Hispanic	59	8.1	3.6	11.1	4.2	3.1	.9
	Black	14	a	a	a	a	a	a
	White	143	9.9	4.9	11.2	4.5	1.3	.3

a - Sample size too small for reliable estimation.
* See table 7A "*".
See table 7A "".
# See table 7A "note".

Table 7F

Mean IRT Scores in Writing by Academic Year, Race/Ethnicity and Country of Origin

Country of Origin	Race/ Ethnicity	n*	Sophomore Mean	SD**	Senior Mean	SD	Change	Effect Size#
USA		9526	9.5	4.5	11.1	4.4	1.6	.4
	Hispanic	1088	7.2	4.0	9.0	4.3	1.9	.5
	Mexican	737	7.4	4.0	9.2	4.1	1.9	.5
	Cuban	80	10.0	4.9	11.8	4.7	1.8	.4
	Puerto Rican	131	5.8	3.6	8.1	4.0	2.3	.6
	Other Hispanic	140	7.0	3.8	8.6	4.8	1.6	.4
	Black	1341	6.5	4.1	8.1	4.2	1.6	.4
	White	7098	10.1	4.3	11.7	4.2	1.6	.4
OUTSIDE USA		437	8.4	4.6	10.5	4.5	2.1	.5
	Hispanic	229	7.4	4.4	9.8	4.7	2.4	.5
	Mexican	85	6.2	4.3	8.2	4.4	2.0	.5
	Cuban	68	9.5	3.9	11.7	4.2	2.2	.6
	Puerto Rican	39	6.9	4.1	9.1	5.1	2.3	.6
	Other Hispanic	38	8.3	4.6	11.7	3.9	3.4	.7
	Black	53	7.3	4.3	10.1	4.4	2.8	.7
	White	154	9.0	4.6	10.9	4.4	1.9	.4

* See table 7A "*".
See table 7A "".
# See table 7A "note".

Table 7G

Mean IRT Scores in Writing by Academic Year, Race/Ethnicity and Length of Residence

Length of Residence	Race/ Ethnicity	n*	Sophomore Mean	SD**	Senior Mean	SD	Change	Effect Size#
1 to 5 Years		230	7.9	4.5	10.0	4.7	2.1	.5
	Hispanic	111	5.9	3.9	8.6	4.3	2.7	.7
	Mexican	35	5.3	3.7	8.7	3.7	3.4	.9
	Cuban	24	a	a	a	a	a	a
	Puerto Rican	27	a	a	a	a	a	a
	Other Hispanic	26	a	a	a	a	a	a
	Black	40	6.6	3.7	8.6	4.5	2.0	.5
	White	79	9.4	4.5	11.2	4.7	1.9	.4
6 to 10 Years		278	8.8	4.5	10.9	4.4	2.1	.5
	Hispanic	84	7.6	3.9	10.0	4.4	2.4	.6
	Mexican	33	7.6	3.7	8.6	4.3	1.1	.3
	Cuban	31	10.1	3.6	12.4	4.2	2.3	.6
	Puerto Rican	12	a	a	a	a	a	a
	Other Hispanic	8	a	a	a	a	a	a
	Black	39	6.4	4.2	8.2	5.0	1.8	.4
	White	156	9.4	4.4	11.4	4.2	2.1	.5
11 or More		9560	9.6	4.5	11.1	4.4	1.6	.4
	Hispanic	1126	7.3	4.1	9.1	4.4	1.8	.5
	Mexican	756	7.4	4.1	9.2	4.1	1.9	.5
	Cuban	95	10.1	4.6	11.9	4.5	1.8	.4
	Puerto Rican	130	6.2	3.9	8.3	4.1	2.0	.5
	Other Hispanic	145	7.2	3.9	8.9	4.8	1.8	.4
	Black	1315	6.5	4.1	8.1	4.2	1.6	.4
	White	7020	10.1	4.3	11.7	4.2	1.6	.4

a - Sample size too small for reliable estimation.
* See table 7A "*".
See table 7A "".
# See table 7A "note".

Table 7H

Mean IRT Scores in Writing by Academic Year, Race/Ethnicity, and Carnegie Units in the New Basics

Carnegie Units in the New Basics	Race/ Ethnicity	n*	Sophomore Mean	SD**	Senior Mean	SD	Change	Effect Size#
Lowest		1735	7.3	4.2	8.6	4.4	1.3	.3
	Hispanic	244	5.7	3.7	6.8	4.0	1.1	1.8
	Mexican	142	5.8	3.5	6.6	3.8	.8	.2
	Cuban	22	a	a	a	a	a	a
	Puerto Rican	51	5.2	3.5	7.1	4.0	1.9	.5
	Other Hispanic	29	a	a	a	a	a	a
	Black	247	5.4	3.6	6.4	3.9	1.1	.3
	White	1263	7.7	4.2	9.1	4.3	1.4	.3
Second		2654	8.5	4.3	10.2	4.2	1.7	.4
	Hispanic	393	6.8	3.8	8.5	4.1	1.7	.4
	Mexican	268	7.1	3.9	8.6	3.7	1.5	.4
	Cuban	20	a	a	a	a	a	a
	Puerto Rican	51	5.7	3.5	8.1	4.1	2.4	.7
	Other Hispanic	54	6.6	3.7	8.2	4.7	1.6	.4
	Black	409	5.7	3.8	7.3	3.8	1.5	.4
	White	1853	9.1	4.2	10.7	4.1	1.7	.4
Third		2497	9.7	4.3	11.4	4.1	1.7	.4
	Hispanic	373	7.7	3.9	10.3	4.0	2.6	.7
	Mexican	259	7.6	3.9	10.2	4.0	2.6	.7
	Cuban	45	8.3	4.0	11.6	3.1	3.3	.8
	Puerto Rican	32	6.0	4.0	7.9	4.1	1.9	.5
	Other Hispanic	39	8.5	3.5	11.4	3.8	2.9	.8
	Black	372	6.3	4.1	8.1	4.2	1.8	.4
	White	1752	10.4	4.0	12.0	3.9	1.6	.4
Highest		3149	11.6	4.0	13.3	3.5	1.7	.4
	Hispanic	324	9.1	4.3	11.8	3.8	2.8	.6
	Mexican	165	9.1	4.4	12.0	3.1	2.9	.7
	Cuban	65	11.3	4.1	12.9	4.2	1.6	.4
	Puerto Rican	36	8.5	3.6	11.9	3.7	3.4	.9
	Other Hispanic	58	8.2	4.3	11.0	4.4	2.8	.6
	Black	393	8.9	4.0	10.9	3.5	2.0	.5
	White	2433	11.9	3.8	13.6	3.4	1.6	.4

a - Sample size too small for reliable estimation.
* See table 7A "*".
See table 7A "".
# See table 7A "note".

Table 7I

Mean IRT Scores in Writing by Academic Year, Race/Ethnicity and Educational Aspiration

Post Sec Educ Plans	Race/ Ethnicity	n*	Sophomore		Senior		Change	Effect Size#
			Mean	SD**	Mean	SD		
HS ONLY		1863	7.0	4.1	8.4	4.4	1.4	.3
	Hispanic	270	5.4	3.3	6.7	3.9	1.3	.4
	Mexican	207	5.6	3.5	6.9	3.9	1.3	.4
	Cuban	6	a	a	a	a	a	a
	Puerto Rican	43	4.0	3.4	5.9	3.8	1.9	.6
	Other Hispanic	25	a	a	a	a	a	a
	Black	187	4.6	3.4	6.0	4.0	1.4	.4
	White	1396	7.5	4.1	8.9	4.3	1.4	.3
SOME COLLEGE		1812	8.0	4.3	9.5	4.3	1.5	.4
	Hispanic	237	6.3	3.8	8.0	3.9	1.6	.4
	Mexican	159	6.7	3.9	8.6	3.4	1.9	.5
	Cuban	17	a	a	a	a	a	a
	Puerto Rican	30	6.6	3.3	7.1	3.7	.5	.2
	Other Hispanic	30	5.1	3.1	6.6	4.2	1.4	.5
	Black	266	5.6	3.6	7.0	3.8	1.4	.4
	White	1308	8.5	4.2	10.0	4.2	1.5	.4
COLLEGE		1764	9.4	4.1	11.2	3.9	1.9	.5
	Hispanic	271	7.5	3.9	9.8	4.1	2.3	.6
	Mexican	175	7.9	3.8	10.4	3.8	2.4	.6
	Cuban	26	a	a	a	a	a	a
	Puerto Rican	35	6.3	3.2	8.9	3.6	2.7	.8
	Other Hispanic	35	6.9	3.8	9.0	4.5	2.1	.6
	Black	270	6.1	3.9	8.1	3.5	2.0	.5
	White	1223	10.0	3.9	11.8	3.7	1.8	.5
COLLEGE AND BEYOND		4571	11.5	3.9	13.1	3.5	1.7	.4
	Hispanic	534	9.3	4.0	11.7	3.6	2.5	.6
	Mexican	283	9.3	3.9	11.3	3.6	2.1	.5
	Cuban	102	10.4	3.9	12.8	3.3	2.4	.6
	Puerto Rican	59	8.0	3.7	11.4	3.5	3.4	.9
	Other Hispanic	90	9.5	4.3	12.3	3.7	2.8	.7
	Black	684	8.1	4.1	9.7	4.1	1.6	.4
	White	3353	12.0	3.7	13.6	3.2	1.6	.4

a - Sample size too small for reliable estimation.
* See table 7A "*".
See table 7A "".
# See table 7A "note".

APPENDIX C

APPENDIX C

SUPPLEMENTARY ANALYTIC TABLES

TABLE

C1 Intercorrelations showing Bivariate Relationships Among and Predictor Variables Considered for the Multiple Regression Equation

C2 Estimated Design Effects in High School and Beyond by Racial/Ethnic Group and Variable

Table C1

Intercorrelations Showing Bivariate Relationships Among Dependent and Predictor Variables Considered for the Multiple Regression Equation

Predictor Variable	Grade 12 Achievement Vocab	 Reading	 Math	 Science	 Writing
Grade 10 Achievement	.81*	.78*	.84*	.79*	.70*
Background					
SES	.44**	.36*	.44*	.39*	.33*
Sex	-.06*	-.06*	-.09*	-.18*	.20*
Educational Aspirations	.47*	.45*	.53*	.40	.45*
Home Language					
English Dominant	-.14*	-.10*	-.11*	-.15*	-.08*
Non-Eng Dominant	.06*	.05*	.05*	.05*	.05*
Race/Ethnicity					
Mexican	-.16*	-.12*	-.14*	-.16*	-.10*
Cuban	-.01*	.00	.01	-.03*	.00
Puerto Rican	-.09*	-.08*	-.09*	-.10*	-.07*
Other Hispanic	-.02*	-.03*	-.03*	-.03*	-.03*
Black	-.25*	-.19*	-.23*	-.29*	-.22*
Academic Credits					
English	.25*	.23*	.26*	.18*	.28*
Mathematics	.25*	.23*	.26*	.18*	.28*
Science	.42	.42	.53*	.43*	.40*

* Significant at p less than .01

Table C2

Estimated Design Effects* in High School and Beyond by Racial/Ethnic Group and Variable: Sophomore Cohort

Variable	Mexican	Cuban	Puerto Rican	Other Hispanic	Black	Non-Hispanic White
	DEFTs*					
Grade 12 Achievement						
Vocabulary	1.60	1.70	1.90	1.79	1.56	1.77
Reading	2.12	1.46	1.72	2.67	1.81	1.74
Mathematics	2.22	1.61	1.58	2.12	2.23	1.74
Science	1.84	1.65	1.51	1.83	1.76	1.79
Writing	2.05	2.23	1.29	1.57	1.58	1.65
High School Program						
General	1.70	1.57	.88	1.65	1.52	1.44
Academic	1.56	1.83	1.93	1.88	2.47	1.96
Vocational	1.68	1.67	1.85	1.92	2.11	1.93
Carnegie Units						
Academic Credits	2.45	2.04	3.16	2.61	2.52	1.94

* The design effect (DEFF) is a measure of the efficiency of the sample estimate relative to a simple random sample. It is the ratio of the actual variance of an estimate (the standard error) to the variance of the same estimate from a simple random sample with the same number of cases. The square root of the design effect (the DEFT) is the value shown in this table, and is the mean of the root design effects for change estimates.

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